CONTRACT PROCUREMENT PRACTICES OF SHELTERED WORKSHOPS

By Michael M. Dolnick

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CONTRACT PROCUREMENT PRACTICES OF SHELTERED WORKSHOPS

by

Michael M. Dolnick

Prepared as a Research Project of the National Society for Crippled Children and Adults, Inc.

Michael M. Dolnick
Principal Investigator

Frank A. Musolf
Research Assistant

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.
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FOREWORD

Rapid expansion and growth of sheltered workshops throughout the country have focused attention on the need for definitive guides and references to assist professional and technical personnel, particularly in newly organized operations. This report is the result of a three-year research project designed and carried out by the National Society for Crippled Children and Adults to fulfill this need in the specialized area of contract procurement. The Society is pleased to present the report and hopes that it will be an aid in an important phase of sheltered workshop services.

The Society is deeply grateful to many persons and organizations for their assistance to the study staff. During the course of the study, an advisory committee of dedicated leaders in the field of rehabilitation gave guidance and direction to the principal investigator. This committee was composed of the following:

Bertram Black, *Executive Director*
Altro Health and Rehabilitation Services, Inc.
New York, N. Y.

Seymour Brandwein, *Economist*
AFL-CIO
Washington, D.C.

William A. Fraenkel, Ph.D., *Executive Director*
Association for the Help of Retarded Children
New York, N.Y.

William Gellman, Ph.D., *Executive Director*
Jewish Vocational Service
Chicago, Ill.

Charles T. Higgins, *Assistant Executive Director*
Alabama Society for Crippled Children and Adults
Montgomery, Ala.

Ray Hogarty, *Director Workshop Services*
Crippled Children's Society of Los Angeles County
Los Angeles, Calif.

Arthur H. Korn, *Chief*
Section on Handicapped Workers Problems
U. S. Dept. of Labor, Wage and Hour and
Public Contracts Divisions
Washington, D.C.

Jerome Nathan, *Vice President*
Consolidated Distilled Products
and *Chairman, Board of Directors*
Community Industrial Contract Association
Chicago, Ill.

Miss June Sokolov, *Director*
Hartford Rehabilitation Center
Hartford, Conn.

Mrs. Vivian Shepherd, *Executive Director*
Rehabilitation Institute
Kansas City, Mo.

Murray Tondow, Ph.D., *Director Pupil Personnel Services*
Palo Alto Unified School District
Palo Alto, Calif.

Robert E. Watkins, *Assistant Executive Vice President*
Goodwill Industries of America
Washington, D.C.

Our appreciation is also extended to Dr. Bernice W. Polemis, School of Social Service Administration, University of Chicago; H. Barrett Rogers, Professor of Industrial Management, Northwestern University; and Donald W. Ullman, Comptroller, National Society for Crippled Children and Adults, who served as professional consultants to the project.

Significant assistance was received from the National Association of Sheltered Workshops and Homebound Programs, Goodwill Industries of America, Jewish Occupational Council, National Industries for the Blind, and United Cerebral Palsy Associations.

If the document becomes accepted as a useful tool and of value in strengthening sheltered workshop contract procedures, it will be the result of the combined efforts of many persons who contributed to its development.

Sumner G. Whittier
Executive Director
National Society for Crippled
Children and Adults

PREFACE

This publication contains a descriptive report of the findings of a study of contract procurement practices in 35 sheltered workshops, conclusions based on the data obtained, and several sections of a how-to-do-it nature designed primarily to aid the beginning or less experienced workshop. It is supplemented by reference to some of the pertinent literature in related fields.

During the data-gathering phase of the study, approximately one week was spent in each workshop interviewing staff and contractors. Each made some significant contribution. Some of the methods and techniques observed were most ingenious and should be of interest even to the well-established and experienced workshop. Others that are accepted as elementary by the successful workshop may provide new and useful information to the less experienced organization.

It is hoped, therefore, that this report will be read in its entirety by staff members in both new and well-established workshops. For busy people who do not find this possible, the final chapter summarizes the principal report findings. However, a reading of this chapter, it is hoped, will stimulate all readers to attack the body of the report.

A report of this length cannot cover all aspects of contracting in sheltered workshops and this publication does not purport to be a comprehensive textbook. Considerations of time, money, and staff have made it necessary to limit the report to subject areas considered to be of special interest to less experienced workshop operators. They are urged to read the entire report, giving special attention to the chapters on The Contract Procurement Man, The Pricing Process, Analysis of the Contracts Studied, Selected Financial Aspects of Contracting, and What Contractors Say About Workshops.

In addition to expressing personal appreciation for the help of individuals and organizations mentioned in the Foreword, I would like to acknowledge the role of Frank A. Musolf, research assistant to the project, whose diligence insured our adherence to the project time schedule and whose astuteness often kept the content from straying from its primary purposes. I am indebted to Dean W. Roberts, M.D., former Executive Director of the National Society for Crippled Children and Adults and now Executive Director of the National Commission on Community Health Services, to Miss Jayne Shover, Associate Director of the Society, for advice and encouragement during critical phases of the study, and to Miss Daisy Byler for editing the manuscript.

Michael M. Dolnick

PARTICIPATING WORKSHOPS

We are indebted to the following 35 sheltered workshops that were the principal study participants and provided the primary source material for this report:

- Ability Building Center, Inc., Rochester, Minn.
- Associated Craftsmen, Hackensack, N. J.
- Association for the Help of Retarded Children Training Center and Workshop, New York City, N. Y.
- Baltimore League for Crippled Children & Adults Workshop, Baltimore, Md.
- Cleveland Society for the Blind, Cleveland, Ohio
- Community Rehabilitation Industries, Long Beach, Calif.
- Community Workshops Inc., St. Paul, Minn.
- Community Workshops of Rhode Island, Providence, R. I.
- Curative Workshop of Racine, Wis.
- Detroit League for the Handicapped, Detroit, Mich.
- Goodwill Industries, Chicago, Ill.
- Goodwill Industries, Dallas, Tex.
- Goodwill Industries, Dayton, Ohio
- Goodwill Industries, Detroit, Mich.
- Goodwill Industries, Indianapolis, Ind.
- Goodwill Industries of the Ohio Valley, Cincinnati, Ohio
- Goodwill Industries of Santa Clara County, San Jose, Calif.
- Goodwill Industries of Southern California, Los Angeles, Calif.
- Industrial Home for the Blind, Brooklyn, N. Y.
- Institute for the Crippled and Disabled, New York City, N. Y.
- Jewish Vocational Service, Kansas City, Mo.
- Jewish Vocational Service, Miami, Fla.
- Jewish Vocational Service, Milwaukee, Wis.
- May T. Morrison Center for Rehabilitation, San Francisco, Calif.
- Minneapolis Society for the Blind, Minneapolis, Minn.
- Mt. Diablo Therapy Center, Pleasant Hill, Calif.
- Occupational Services, Inc., Chambersburg, Pa.
- Occupational Training Center & Sheltered Workshop for the Retarded, Baltimore, Md.
- Opportunity Center, Inc., Wilmington, Del.
- Polk County Easter Seal Workshop, Des Moines, Iowa
- Rehabilitation Center of Southern Fairfield County, Stamford, Conn.
- San Mateo Society for Crippled Children and Adults, Inc., Burlingame, Calif.
- Sheltered Workshop of San Diego, Calif.
- United Cerebral Palsy Workshop, Minneapolis, Minn.
- Vocational Guidance and Rehabilitation Service, Cleveland, Ohio

Additional data supplementing the basic information from the above were supplied by:

- Chicago Lighthouse for the Blind, Chicago, Ill.
- Easter Seal Rehabilitation Workshop, Salt Lake City, Utah
- Federation of the Handicapped, New York City, N. Y.
- San Francisco Lighthouse for the Blind, San Francisco, Calif.
- Sheltered Workshop Inc., Santa Monica, Calif.
- United Cerebral Palsy, Los Angeles, Calif.

Other workshops that were visited and offered specific assistance were:

- Aid Retarded Children, Inc., San Francisco, Calif.
- Community Workshop, Detroit, Mich.
- Crippled Children's Society of Los Angeles County, Calif.
- Easter Seal Society for Crippled Children and Adults of Contra Costa County, Calif.
- Goodwill Industries of Cleveland, Ohio
- Goodwill Industries of Des Moines, Iowa
- Goodwill Industries of Muskegon County, Inc., Muskegon, Mich.
- Jewish Vocational Service and Employment Center, Chicago, Ill.
- Rehabilitation Institute, Kansas City, Mo.
- Salt Lake Deseret Industries, Salt Lake City, Utah
- Welfare Rehabilitation Service, Chicago, Ill.

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CHAPTER I

INTRODUCTION TO CONTRACTING IN SHELTERED WORKSHOPS

The Problem

One of the most important problems facing sheltered workshops* engaged in contract work is that of obtaining sufficient work to keep their handicapped personnel employed. Work is the means by which the workshop accomplishes its objectives, and the inability to provide continuous and meaningful employment defeats the very purpose of the workshop's existence. Lack of work results in frequent layoffs and an accompanying loss in rehabilitative gains. Workshops in this situation also find that too much of the total effort of staff must be devoted to the solicitation of contracts.

The extent of the problem has been increased by the fact that in recent years many workshops whose operations formerly relied entirely on the manufacture of products or the renovation of used materials for resale have expanded their operations into industrial contracting. Newly organized workshops are generally selecting industrial contracts as the preferred method for providing employment to the handicapped.

Contracting is here defined as the performance of work in a sheltered workshop to the specifications of the contractor. In most situations, it refers to all work not done on the contractor's premises and is sometimes called "take-out" work. There are contractors who own no physical facilities but who contract with the workshop to produce an entire item. The work, nevertheless, is produced to the contractor's specifications and is his property. The terms *contract* and *subcontract* are considered to be identical in meaning. Throughout this report contracts and contracting will be used in preference to subcontract and subcontracting.

Contracting is a big business in the United States. While it is not possible to estimate the total national volume, some ideas can be drawn from the experience of the 35 workshops participating in this study. These relatively small business enterprises had combined annual contract income in 1962 of $3,175,509. There are approximately 800 sheltered workshops in the United States and it is predicted that the number will double in the next two decades. With this great expansion, the role of contracting in the future will take on additional importance.

Why Industry Contracts

Industry in general and companies engaged in the long-established practice of contracting require no proof of its advantages, having found it to be both convenient and profitable. Some of the principal reasons why this is so are:

1. Additional facilities and labor are needed to meet production requirements either on a short- or a long-term basis as a consequence of:
   a. insufficient work space or storage space
   b. inadequate labor supply
   c. insufficient machinery or specialized equipment
   d. emergency delivery schedules.
2. The work is outside the normal range of activities performed by the contractor and he hesitates to undertake a job that would interfere with his regular production schedule. These may be incidental or short-run jobs, or specialized jobs completely foreign to the basic operations of the contractor. In the latter case, it may be advantageous for him to seek a specialist with specific experience in the work to be done.
3. The contractor does not wish to use his skilled or highly paid personnel on jobs requiring a lower skill level and normally performed at a lower labor rate. Also it is often found that highly skilled people do not like to perform unskilled tasks. Engineering talent may not be available or the contractor may not wish to assign engineering time to what he considers a nuisance operation.
4. The cost of contracting is less than the cost of performing the same operation on company premises. This conclusion is generally reached when a cost-conscious contractor is aware of the expense involved in hiring and training new personnel, in developing new items that include engineering and set-up time and the hidden overhead that always creeps in when new tasks are assumed, or in hiring temporary workers with a possible increase of the employer's Unemployment Compensation expense.

Manufacturing and Contracting

While this study did not concern itself with manufacturing operations, their importance should not be overlooked. Some general comments can be made.

The workshop director, plagued by seasonality of contract work, may look enviously at his colleagues with an apparently successful manufacturing operation and may consider making a changeover. Board members on occasion will ask workshop directors to explore the elimination of contract work and to search for a "hot" item the shop can manufacture. Most of these explorations terminate upon the realization that a different type of business program will be required and that the financial needs may considerably exceed the current budget.

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* A sheltered workshop is defined as a nonprofit establishment providing employment to persons who, because of their physical, mental, social, or emotional handicaps, are unable to find employment in or are not yet acceptable to competitive industry.

Success of a manufacturing shop depends upon very specific factors that should be considered carefully. The manufacturer in no way has an easy task. The aggressiveness and initiative required to find and then promote a suitable product calls for staff with sound ability and business background. Often such people command larger salaries than the workshop can reasonably offer. A workshop may move into manufacturing and begin to produce an item that does not sell with any continued degree of success. This situation could conceivably place the workshop in a serious predicament with all available space and storage area taken up with supposedly good but unsalable merchandise. It can also be noted here that large inventories of the items are required to meet peak seasons and demand a good deal of space and capital.

The disadvantages of manufacturing noted above are among the reasons so many workshops have undertaken contracting as the preferred method of providing training and employment. Contracting offers realistic industrial work from sources that accept the procedure and understand its advantages.

Pricing of Contracts

A major part of the problem of procuring contract work is the pricing of and bidding for contract jobs. Personnel with limited business or industrial experience may not have sufficient knowledge of business management and business economics to estimate properly the costs of jobs and to bid on them correctly. In certain instances, public educational programs may have assured recognition and sympathetic approval of the business community for the workshop and contracts may be awarded on a trial basis, but continued support of customers may subsequently be lost because industrial pricing procedures are inadequate.

Improper pricing may have serious repercussions. Extremely low pricing, sometimes resorted to in order to obtain badly needed work, may have the effect of subsidizing contractors and affording them an unfair economic advantage over competitors. An excessively high bid creates the impression that the workshop does not know what it is doing and spoils its prospects for future work when the same contractor may be revisited.

Thus, contracting in sheltered workshops involves two central problems: procurement, or the getting of work, and pricing, the determination of the proper charge for services given. These two core elements represent the principal emphasis of this study.

CHAPTER II

BACKGROUND OF STUDY AND WORKSHOP CHARACTERISTICS

Origin of the Study

Leaders in the workshop movement have long been aware of the need for practical information of a simplified nature to guide the newly formed workshop in contract procurement and pricing. At present, workshop staff members seeking enlightenment will find very little in the literature. This study originated because of the need for such reference materials. The resulting report is a factual account of the information collected from 35 participating workshops together with observations and recommendations drawn from the data. Supplementary background information was obtained from published sources.

The interest of the National Society for Crippled Children and Adults in conducting the study was a natural development in the light of the increasing number of affiliates owning and operating sheltered workshops. Providing support to the Society in the study was the National Association of Sheltered Workshops and Homebound Programs (NASWHP). Its officials had for years emphasized the need for better information on contract procurement and in February, 1959, its executive committee unanimously approved the project in principle. Members of the NASWHP executive committee also helped to orient the principal investigator during the initial stages of the study, assisted in forming the Advisory Committee, aided in the selection of participating workshops, and offered encouragement and guidance throughout.

Selection of Study Participants

In 1960 the number of sheltered workshops in the country was estimated at 800. For its purposes, the study needed to limit its concern to those meeting two basic criteria: 1) a workshop must have been engaged in significant contracting operations for at least a two-year period, and 2) it must have well-developed record-keeping systems. The size of this group was not known. To provide a basis for selection of participating workshops, recommendations were solicited from leaders in the field, including our study Advisory Committee. In addition, the following characteristics were taken into consideration: 1) geographic location, 2) size of the workshop in terms of contract volume, 3) diagnostic groups served, 4) services offered, and 5) affiliation with national organizations.

The 35 workshops selected are listed on page *vii.* Many excellent ones could not be included because of limitations of time, money, and staff. In a few instances, workshops that might have made significant contributions to the study were not included because of circumstances causing them to decline to participate.

Study Methodology

All information was obtained through personal interviews and detailed examination of workshop records by the principal investigator and the research assistant. The essential data were collected on five different schedules:

1. A *Basic Schedule* for recording identifying information and basic characteristics of the workshop. This information was generally supplied by the workshop director. One schedule was completed for each workshop, for a total of 35.
2. A *Financial Data Schedule* on which fiscal operations of the workshop during the last fiscal year were summarized. This schedule also called for trend information over a two-year period on contract income, wages paid, and in some instances hours worked. Study interviewers were assisted by workshop accounting staff in obtaining this information and Financial Data Schedules were completed for all but one participating workshop, for a total of 34.
3. The *Individual Contract Schedule,* designed to obtain detailed information about a representative number of contracts in each workshop. On this schedule job details were described, methods of handling contracts were discussed, and essential economic data about the contract were listed, including costs wherever possible. Workshop directors assisted in identifying for study contracts that were most significant and typical of the workshop's operations. At least five contracts were selected in each workshop and a total of 243 Individual Contract Schedules were completed.
4. The *Contract Procurement Specialist Schedule,* which recorded details of interviews with the workshop staff primarily responsible for getting contract work. The interview covered methods and procedures, contractor reactions, and unusual techniques employed to procure contracts.
5. The *Contractor Interview Schedule,* designed to get information about contractors' experiences with sheltered workshops, their reactions to the quality and type of work performed, and their recommendations for improved workshop-customer relations. This schedule was designed so that it could be completed in 15 minutes. Workshop assistance and co-operation was obtained in order to secure reception by contractors. A total of 132 Contractor Interview Schedules were completed.

Advisory Committee

Twelve leaders in the workshop field (see Foreword) served as members of the Advisory Committee during the course of the study. Members of this group were available at all times to answer questions on an individual basis. They also met together as a group for two day-long sessions to review the progress of the study and to solve specific problems. The Committee recommended changes in the data-gathering instruments, recommended workshops to participate in the study, opened doors to the principal investigator in the obtaining of information, reviewed and criticized the manuscript, and offered technical assistance in specialized aspects of the study's subject matter.

Field Test

Drafts of the data-gathering instruments were field tested in three workshops in order to determine their practicality and value. As a result of this field test, conducted during the first year of the study, significant changes and improvements were made.

CHARACTERISTICS OF PARTICIPATING WORKSHOPS

Geographic Distribution

The 35 workshops are located in 19 states, with some concentration on the East Coast and in the state of California since these two areas have an unusually high percentage of the total number of workshops in the country. Certain geographic areas of the United States are not well represented because there are few workshops in states in the area, and, of those that do exist, few met the criteria for inclusion in the study.

Using the regional classification system of the U.S. Census Bureau, the geographic distribution of the 35 participating workshops is as follows:

New England States	2
Middle Atlantic States	5
East North Central States	10
West North Central States	6
South Atlantic States	4
West South Central States	1
Mountain States	0
Pacific States	7

Length of Time in Operation

Twenty-nine of the 35 workshops had been in operation for five years or more. Only one workshop had as little as two years of experience and the oldest had been in business for 44 years. The length of time that the workshops had been in existence was as follows:

Less than 5 years	6
5 to 9 years	17
10 to 14 years	5
15 years and over	7

Size of Workshop

Workshops were categorized as small, medium, or large, based on annual dollar income from contracts. If procedures involved purchase of materials subsequently billed to a contractor, the cost of materials was deducted. Contract income thus refers to net figures — gross receipts from contractors minus cost of materials.

Annual contract income ranged from $11,950 in the smallest workshop to $300,511 in the largest. Workshops with contract volume of under $50,000 were classified as small; $50,000 to under $100,000 as medium; and $100,000 and over as large. Annual contract volume was distributed as follows:

Under $20,000	7
$20,000 through $49,999	5
$50,000 through $74,999	5
$75,000 through $99,999	7
$100,000 through $199,999	7
$200,000 and over	4

By our definition, 12 of the participating workshops are small, 12 medium, and 11 large.

Other indicators of workshop size are square feet of floor space, number of staff members, and number of employees. The term *employee,* as used in this report, is synonymous with client or trainee.

Floor Space

Workshops ranged in size from 1,406 to 38,232 square feet. Twenty workshops had less than 10,000 square feet of floor space. The areas of the 35 workshops shown in square feet are as follows:

Under 2,500	3
2,500 through 4,999	5
5,000 through 7,499	5
7,500 through 9,999	7
10,000 through 14,999	9
15,000 through 19,999	3
20,000 and over	3

Staff

The number of staff members employed by the participating workshops ranged from two to 21. Sixteen of the workshops had fewer than six staff members and 27 had fewer than nine. Only professional, clerical, and technical staff members directly involved in the contract operations of the workshop are included in the following figures:

Under 3 staff members	1 workshop
3 through 5	15
6 through 8	11
9 and over	8

Number of Employees

The annual average number of employees (clients or trainees) in the 35 workshops ranged from 16 to 150, distributed as follows:

Under 25 employees	8 workshops
25 through 49	14
50 through 74	6
75 through 99	4
100 and over	3

Diagnostic Conditions Served

Twenty-eight workshops served handicapped persons with various types of disabilities; seven workshops were single diagnostic group workshops serving only persons with one type of disability. Of the seven single diagnostic group workshops, three served the blind, two served the mentally retarded, one served the cerebral palsied, and one served the aged.

In the multidisability workshops (those serving more than one type of handicapped individual), practically all of the above four diagnostic groups were included in various ratios. For example, the percentage of mentally retarded in the multiple disability workshops ranged from 1 percent to as high as 50 percent. Persons over the age of 55 years represented as high as 54 percent of the total number of workshop employees in one multidisability shop, while four such workshops had no employees over 55.

Length of Employment

Thirty-three of the 35 workshops did not have a policy limiting the amount of time an employee could remain in the shop. The two workshops with time limits set these limits at six months and one year. Workshops engaged solely in evaluation and adjustment services more generally impose specific time limitations. No such workshops were included in the study.

The percentage of employees in each workshop with more than two years of service ranged from 3 percent to 92 percent, as shown in the following:

Under 10%	6 workshops
10 through 24%	8
25 through 39%	6
40 through 59%	6
60 through 79%	7
80% and over	2

Machinery

All 35 workshops owned some machinery, but the amount of equipment varied by size of workshop. Small workshops (contract income of less than $50,000) generally had less machinery than did those of large or medium size. Only one small workshop had as many as 25 pieces of industrial equipment. At least five large workshops not only had more than 25 pieces of industrial machinery but had well-equipped machine shops and considerable capital invested in equipment.

The following table relates the amount of industrial machinery to workshop size. Minimum equipment was considered to be fewer than five pieces of a combination of sewing machines, drill presses, riveters, or other light industrial machines. Workshops with five through 24 pieces of equipment of this type were considered to have a moderate amount of machinery, and workshops with 25 or more machines were classified as having considerable equipment.

Table I

Amount of Industrial Machinery and Size of Workshop

Amount of Machinery	Size of Workshop			
	Total	Small	Medium	Large
Total	35	12	12	11
Minimum	6	5	-	1
Moderate	14	7	3	4
Considerable	15	-	9	6

Affiliations

Thirteen workshops were independent and 22 were affiliated with various state or national organizations. Eight were affiliated with Goodwill Industries of America; four were affiliates of the Easter Seal Society; the remainder had various identifications or affiliations including National Industries for the Blind, National Association for Retarded Children, United Cerebral Palsy, and the Jewish Occupational Council. Ten workshops were members of the United Fund or Community Chest and received part of their operating income from these groups.

Services Offered

There are great differences in the types of services offered by sheltered workshops and almost as many systems for classifying them accordingly. Six classifications based on objectives and services that have been developed by the National Institute on Workshop Standards were not applicable to the specific purposes of this study. However, some of the criteria developed by the Institute were utilized. For purposes of this study, workshops were grouped into three classifications:

Extended Employment Workshop. The primary emphasis is on remunerative employment of the handicapped who appear to be unemployable in the competitive labor market. Rehabilitation services in this setting play a subordinate role to the objective of achieving successful employment within the workshop.

General Rehabilitation Workshop. The desired objective is to enable the handicapped worker to move out of the workshop into competitive employment after a period of work evaluation, work adjustment, or vocational training. Some workers who are unable to achieve the transition to industry may remain in the workshop indefinitely, as in an extended employment workshop.

Comprehensive Rehabilitation Workshop. The desired objective is the same as in the general rehabilitation workshop. The difference is one of degree and is determined primarily by the intensity of service given and the number of professional staff members specifically assigned to work evaluation, work adjustment, counseling, placement, or other rehabilitation functions. The services offered within the workshop itself determine the classification. For example, a workshop emphasizing long-term employment but identified with, or a part of, a comprehensive rehabilitation center was classified as an extended employment workshop even though all types of rehabilitation services were theoretically available to workshop clients through the rehabilitation center staff.

Using these classifications, the 35 participating workshops were grouped as follows: extended employment workshops, 4; general rehabilitation workshops, 19; and comprehensive rehabilitation workshops, 12.

CHAPTER III

INDUSTRIAL PURCHASING AND CONTRACTING PRACTICES

This chapter is included at this point to facilitate better understanding of the framework within which industrial purchasing representatives and executives operate and to serve as an introduction to the work of the contract procurement man.

Industrial purchasing representatives and executives operate within a framework of company policy. Procedures and principles are designed for maximum contractor benefit and a workshop staff cannot expect a purchasing agent to deviate from established policy in order to favor a workshop in preference to an industrial competitor. An understanding of some of the principles customarily followed by industrial purchasing personnel should therefore be helpful.

Establishing a Source of Supply

One of the primary responsibilities of the industrial purchasing representative is to establish good sources of supply. Intensive efforts to locate potential suppliers pay dividends in the long run to the contractor. The purchasing representative who works hard at developing his sources of supply is interested in keeping in touch with possible vendors, especially for emergencies. Workshop procurement men should not be surprised when a purchasing agent asks the workshop to continue to make calls even though there is no work available at the time of contact. Once a good choice has been made, succeeding orders will be placed with confidence since a satisfactory experience is the purchasing agent's best guide to repeat orders. A purchasing agent who is on friendly terms with a supplier as a result of frequent and satisfactory dealings is not likely to be sympathetic to a suggestion that a new source of supply is needed.

A good source of supply means not only dependability but co-operation in emergencies. No matter how carefully production is planned, situations that require unusual effort will arise. Vendors willing to make extraordinary efforts in emergencies receive favorable treatment.

Obtaining a Favorable Price

Another primary responsibility of the purchasing executive is to obtain the most favorable price consistent with the quality desired. The key word here is quality. An industrial buyer does not always place the order with the vendor offering the lowest price. In a survey of purchasing agents, reported by England,[1] it was found that less than half felt obligated in all cases to buy from the lowest bidder, and only about a third felt that it was always economical to buy from the lowest bidder. They generally felt it ethical and economical to request quotations, to receive and compare them, to take into consideration not only the prices quoted but other aspects of the problem, and then to use the best judgment of the purchasing department as to the source of supply to be favored with the order.

An experienced purchasing agent will avoid making a quick decision to buy simply because the seller quotes a price below the prevailing market. Low prices lose their attractiveness when deliveries are uncertain, adjustments are not made, or other services are substandard.

Most contractors recognize that it is not always to their advantage to accept or encourage a price below a supplier's actual cost, since this could result in a chain reaction of vicious price cutting that would eliminate or handicap an efficient supplier. The contractor, then, has no legitimate complaint if vendor prices are raised at a later date and thus disrupt the contractor's price schedule.

Westing[2] states that sound policy requires the industrial buyer to keep all quotations confidential and in particular not to disclose quotations to competitors of the bidding firm. A policy of "firm" bidding, except under unusual circumstances, does not permit bidders to change their bids once they have been submitted. If an honest error has been made in computation, it is, however, ethical and proper to call this to the bidder's attention and ask him to verify his original bid or requote.

Buyer-Seller Co-operation

Experienced purchasing agents understand that they must be flexible and appreciative of the suppliers' problems in order to maintain a good source of supply. They know that suppliers seek to build confidence by not making unreasonable demands and by living up to reasonable obligations. If the supplier is to stay in business, he has to be assured of a profit and the sophisticated purchasing agent sees to it that his vendors do make a profit. One procurement man put it succinctly when he said, "If the contractors bleed you to death they will have to go elsewhere." Most companies like to feel that their suppliers are part of their team. The purchasing agent is interested in improving supplier methods and will assist in engineering problems. He wants his suppliers to be competent in their area of specialization and to offer suggestions for improvement. An excerpt from a memorandum issued by the Ford Motor Company, Purchasing Division, illustrates this point:[3]

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[1] England, Wilbur B., *Procurement: Principles and Cases.* Richard D. Irwin, Inc., Homewood, Ill., 1962. Fourth edition. p. 564.

[2] Westing, J. H., and Fine, I.V. *Industrial Purchasing.* Wiley, New York, 1961. Second edition. p. 141.

> A key factor in pricing is to get the vendor to express his own ideas about production problems and to encourage him to come in with new plans on production methods, design, and cost reduction. The most successful buying operations develop when the vendor and the company are working closely together. The vendor is usually a specialist on a limited number of items and he can develop better ideas for improving performance and reducing costs on his item than Ford can.
>
> Frequently the most important single result to be obtained by purchases analysis is to stimulate the vendor to search independently and consistently for ways to reduce costs. More and more vendors are coming to realize that they are in reality selling to the consumer through the Ford Motor Co. Therefore, any improvements that they can contribute to the finished car by reducing costs or increasing consumer appeal will increase their own sales. In effect, the whole team – Ford and its suppliers – must work together for one successful competitive operation to their mutual long run advantage.

One of the nation's largest corporations, appreciative of the valuable sources of information available to purchasing officers through salesmen and vendors, published a statement of its policies and distributed it to all purchasing personnel. This statement by the Radio Corporation of America is cited as a guide to the attitude of many large corporations.[4]

To the salesman:

1. See him without delay. If, however, he has violated routine rules, call the matter to his attention.
2. Let him tell his story and analyze it while listening.
3. Talk business.
4. Answer ethical questions.
5. Be truthful in all statements.
6. In all negotiations, cover all elements of purchasing in order that the final understanding may be complete.

To the vendor:

1. Do not ask any vendor to quote unless you can conscientiously expect to consider him as a supplier at final determination.
2. Keep specifications fair and clear.
3. Keep competition open and fair.
4. Respect the confidence of vendors and salesmen in all quotations and other confidential information.
5. Do not take improper advantage of sellers' errors.
6. Discourage revision of bids by insisting on best price on first bid. If, however, second bids are accepted, all bidders must have equal opportunity.
7. Cooperate with vendor in solving his difficulties.
8. Negotiate prompt and fair adjustment in handling material below quality.
9. Be courteous in stating rejection of bids with explanations that are reasonable but do not betray confidential information.
10. Answer letters promptly.
11. Handle samples, tests, and reports concerning them with prompt, complete, and truthful information.
12. Submit shipping schedule to vendor and follow up efficiently.
13. Avoid all obligations to seller except strict business obligations.

Workshop directors frequently reported that bids were solicited solely for the purpose of checking the prices of regular suppliers. As noted in point 1 concerning vendors of the above memorandum of the Radio Corporation of America, purchasing officers were cautioned not to solicit quotations indiscriminately. In companies such as RCA, it is realized that a vendor is always put to some expense when he submits a bid and this is a cost that the vendor should not be asked to bear without good reason. The receipt of a request to bid is somewhat of an encouragement to the vendor and carries with it the implication that an order is possible unless the inquiry specifically states that no order is contemplated.

Workshops serving large industrial concerns should know that their performance is systematically evaluated and recorded. Many corporations have formal supplier evaluation and rating forms and require purchasing personnel to make periodic ratings of their vendors.

Suppliers are rated on such factors as quality, delivery, price, assistance in emergencies, good labor relations, quick notification in case of difficulty, adherence to instructions, accounting and record-keeping procedures, quality control, packaging, and engineering. One evaluation form even has a rating item called "not a chronic complainer." When formal evaluation procedures are known to be in use by contractors, staff would find it advantageous to obtain copies of the forms used. The factors used in evaluation can well serve as a check list for workshop self-analysis.

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[3] Lewis, Howard, and England, Wilbur, *Procurement: Principles and Cases*. Richard D. Irwin, Inc., Homewood, Ill., 1957. Third edition. p. 175.

[4] England, *op. cit.* p. 416-417.

Legal Aspects of Contracting

The literature on the law of contracts is detailed and too comprehensive for coverage in this report. However, a few general principles affecting all contracts can be described.

Every purchase is a form of contract and a matter of concern to workshop personnel. A contract to be valid and binding must provide for *1)* an offer and an acceptance; *2)* consideration; *3)* legality of subject matter; and *4)* competent parties.

To create a contract that can be enforced, all parties must agree to its terms. This agreement is expressed by an offer from one party and an acceptance by the other. The phrase "meeting of the minds" is an apt description of this situation.

Normally, there would be no contract if the parties did not so intend. General offers such as advertisements are not offers capable of acceptance. They are merely announcements that the advertiser is interested and would like to receive inquiries for the purpose of negotiation. Requests for quotations and the actual quotations themselves are usually not considered to be an offer or an acceptance but merely the basis upon which negotiations for a contract can begin.

Thus, the placing of a purchase order does not constitute the contract until it is accepted. The question of acceptance is in itself a very complex legal problem. As a general rule, silence on the part of persons receiving the purchase order will not be considered as an acceptance. This rule is based on the well-established legal principle that one person cannot impose a contractual obligation on another without the consent either expressed or implied of that person. If a workshop states to a contractor, "If I do not hear from you I shall consider my offer as accepted," and the contractor makes no reply, there is no contract.

The form of acceptance may vary widely. Generally, large contractors prefer the acceptance to be in writing and, whenever possible, such a procedure is recommended.

Large companies are especially concerned to guard against contracts negotiated by persons other than those authorized. Requests must go through specific channels for authorization before being sent to the seller. Frequently a clause will appear on the purchase order to this effect.

During the course of this study it was found that generally workshops entered into some type of written contract in dealing with their customers. Usually the purchase order issued by the contractor required an acknowledgment on the part of the workshop. This is, in fact, the acceptance necessary for a contract. Many contract arrangements, however, were entirely verbal and completed over the telephone. Lewis and England,[5] in discussing recommended industrial procedure have this to say:

> The placing of an order usually does, and should always, involve the use of a purchase order. Otherwise serious legal complications may develop. Furthermore, the transaction may not properly be recorded. Therefore, even where an order is placed by telephone, a written order should follow for the purpose of confirmation.

In some companies contracts between buyer and seller are long and involved, apparently undertaking to cover every conceivable contingency. In other companies no special form is used. The attitude of a great many purchasing officers is that a formal and complicated contract is not required and adequate protection can be obtained by a regular purchase order with the terms outlined or by a letter dictated so as to include all the terms and arrangements.

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[5] Lewis and England, *op. cit.*

CHAPTER IV

THE CONTRACT PROCUREMENT MAN

The procedures, techniques, and responsibilities of staff working on procurement of contracts were examined through interviews with 44 persons who carried out that function. Forty were representatives of the 35 workshops participating in the study. The remaining interviews were with staff of four nonparticipating workshops.

Only eight workshops employed men who devoted full-time efforts to procurement. Seven workshops either employed part-time procurement personnel or assigned other staff to the function on a part-time basis. In the remaining 20 workshops, procurement was the responsibility of the director or executive. In all cases, the director was involved even where there was full-time special staff. Long-term contractors frequently insisted on dealing with the executive, who was sometimes more conversant with over-all problems of contract procurement than staff assigned to the function on a full-time basis.

Of the eight workshops employing full-time contract procurement men, four were large (contract income of $100,000 and over) and four were of medium size (contract income of from $50,000 to under $100,000).

LEADS FOLLOWED

Procurement men were asked to describe the various leads followed in soliciting work and to comment on the merits of each type of lead. The leads or sources for pursuing contract jobs cited (in order of frequency mentioned) were industrial directories; recommendations of board members; personal knowledge of the industrial community; door to door solicitation without entree (sometimes referred to as cold canvas); telephone book; responses to radio, television, or newspaper publicity; and responses from public speaking engagements.

Industrial Directories

Industrial directories said to be of greatest value to workshops were those published locally by Chambers of Commerce or other business organizations. In addition to data about products manufactured, many of these directories give size of company, number of employees, capacity, names of key executives, central office and branch addresses, brand names, and financial data. The resources of local public libraries were used in determining the availability of suitable industrial directories, which were examined before purchase.

Among the better known national directories are *Thomas Register of American Manufacturers, MacRae's Blue Book, Moody's Industrial Directory,* and *Standard and Poor's Directory.* Advertising by workshops in industrial directories was recommended by a few procurement men.

Board Member Recommendations

The role of board members in contract procurement varied from total lack of participation in some workshops to practically complete assumption of procurement responsibilities in others. As will be discussed in another section, 26 of 243 contracts studied were obtained initially as a result of board member impetus. There were several workshops where no contracts could be attributed to the assistance of a board member.

Volunteer committees worked on contract procurement for several workshops. In one typical case, the chairman of this committee was a member of the board but the other committee members were not. The committee represented most of the large industries in the community and met monthly. Activities of individual members included contacting persons in influential positions within their own companies, recruiting volunteer solicitors to assist in the procurement of work, and inviting guests from other industries to attend meetings. Principal staff members of the workshop also attended the contract committee meetings.

One director stated that the key to a good procurement program was an active community group publicizing the workshop and providing entrees for the procurement man. Another stated that about 90 percent of the shop's contract work came originally through the efforts of the board in "putting pressure" on industry. For any industry considered as a possible source of work, this board was able to provide an entree making the sales problem relatively simple.

Another specific type of assistance given by board members in contract procurement involved the development of sales or procurement brochures. Board members who represented large companies with skilled public relations staff in a number of cases made this talent available to workshops. One instance was found where a board member took the workshop director on an inspection tour of various industrial firms in the community, and the director, using this introduction, followed up at a later date by selling his workshop's services.

The recommendation of a board member did not always mean a positive form of assistance. Several procurement men expressed a skeptical attitude because the person responsible for buying service was frequently not the president or top official of the company with whom the board member was acquainted. An order from that official to "see this man" might be complied with, but the purchasing agent might offer the workshop an impossible job just to show that he co-operated. Further, the skeptics felt some waste motion occurred when the procurement man was obligated to follow all leads supplied by board members even though he knew that they might be inappropriate. Board members wanted to be assured that the staff followed through on their suggestions, and their recommendations took priority over other work, sometimes disrupting plans and schedules.

Board member leads that procurement men found most valuable were those where more than just names and addresses were given. Procurement men wanted to know something about company operations and products, duties and responsibilities of various key personnel, and the person who had the authority to make the final decision about giving out contract work. With such information the procurement man felt he had a selling advantage and could speak in exact terms instead of vague generalities.

Personal Knowledge of the Industrial Community

All contract procurement men and workshop directors utilized their knowledge of the industrial community to determine which leads to follow in the solicitation of work. Wide acquaintance with responsible company officials that allowed the procurement man to call frequently on a personal basis was mentioned many times as the source of a contract. Procurement men with specialized industrial backgrounds maintained their contacts with former colleagues or specialists in those industries. To illustrate, one director with a printing background kept records of the current employers of the area's printing estimators, since this was an occupation subject to frequent shifting between companies.

Contact with company officials at meetings of service clubs such as Kiwanis and the Elks or of the Chamber of Commerce and the like led to some contracts. Workshop representatives who joined these groups found that they were associating with representatives of a significant proportion of the business community. Procurement people, however, generally held that only a "soft sell" could be used to promote a shop at a service club function. Casual mention of the procurement man's identification with the workshop and the work performed was usually sufficient. This approach was especially important at service clubs where businessmen went to get away from everyday pressures.

Some procurement men appeared to be better aware of the pulse of the business community than others. These men found it profitable to read the labor market and trend data appearing in newspapers and trade journals. Some attended conventions of specialized industries such as toys and pharmaceuticals that might provide useful leads for future follow-up. More than once a procurement man told of browsing through department stores when work was slow and picking up items from the counters that could possibly be made in the workshop. Items marked with local addresses were noted for future sales visits.

Door-to-Door Solicitation

Door-to-door solicitation without introduction, appointment, or previous knowledge of the prospect is obviously the most difficult type of selling and was not as well favored as calls that could be set up as a result of specific leads. This type of solicitation was attempted by many of the workshop representatives when they were unable to effect a specific introduction to the proper company official. Contract procurement men unanimously felt that this method was time-consuming and not often productive. There were times, however, when it was the only way an entrance to an important industrial firm could be obtained. Procurement personnel emphasized the necessity of preparation to some extent in the use of cold canvas. Minimally, some idea of the product or service had to be known.

Follow-up to Direct Mail Responses and Publicity

Direct mail as a technique for contract procurement will be discussed in greater detail in Chapter V. Contract solicitors said that the direct mail piece generally evoked only an expression of interest on the part of the recipient. A personal follow-up was required to sell the contract. However, it was felt that a response to a direct mail piece was usually a good lead and resulted in a high percentage of contracts sold, since part of the story had already been told by the mailing and the prospect had a need for the service. The same was true of inquiries received as a result of newspaper, radio, and television publicity. Good results were also reported from responses to public speaking engagements, especially to business groups. Inquiries received as a result of such an address were generally productive when aggressively followed up by the person responsible for contract procurement.

Telephone Book

Where no specific industrial directories existed, the yellow pages of the telephone book frequently were used as a substitute and became the guide to community resources for contract work. The classification by industry enabled the procurement man to build a prospect list that could be refined as more data about each company was obtained.

Several workshops reported that listings were purchased in the "yellow pages" to advertise services to industry. Results of this form of advertising varied. Some staff felt it was beneficial; others stated that it had little or no merit. It was difficult to assess the pulling power of the "yellow pages." Like other forms of advertising, this medium cannot be expected to do a complete job, and a workshop should not enter a listing and just wait for contracts to roll in.

Classifications most frequently used by workshops for listing in the yellow pages were "Assembly and Fabricating Service" and "Packaging and Filling Service." Workshops with specialized services used the classified listings that best described them.

According to a representative of the telephone book industry, the problem of standardization of the classifications in the yellow pages has plagued the many independent telephone companies in this country. It is estimated that about 90 percent comparability now exists among books put out by the different companies. The local telephone company sales representative should be consulted about proper classification if a listing is being considered. Generally, they are fixed, and individual or unusual variations are not permitted. One workshop director who had no success with the yellow pages said his only response to a listing under "Packaging Services" was from a woman who called to inquire if the workshop would package her dog for shipment to Europe by air freight.

Other Sales Resources and Techniques

In addition to the leads or sources most commonly pursued by most of the contract procurement men, some less frequently mentioned avenues of contract solicitation described briefly below may be of interest.

Staff of one workshop read the help wanted columns in the newspapers, particularly those asking for assemblers or specialty occupations represented among its employees. Such advertisements were followed up with a letter indicating that these skills were available in the workshop and suggesting that the advertiser consider contract work as a solution to his need for help. Firms advertising for additional space were also given a description of workshop services.

In two cases staff capitalized on industrial salesmen who made business calls to the workshop. Each visiting salesman was given a complete tour and explanation of services and objectives. When he left, he was provided with a supply of workshop business cards to distribute to other industrial firms, and periodically an inquiry came in from a firm that had received a card from one of the salesmen. They were viewed as excellent resources because their work called for visits to many industrial firms and they frequently had opportunity to discuss problems of overloads, sources of specialty work, and space problems with industrial purchasing agents.

One workshop director said that many large firms have an active subcontracting solicitation program of their own. Generally, their procurement men were seeking large, complex contracts and could be helpful in turning over to the workshops jobs that they considered too minor or outside the scope of their firms.

PERSONS CALLED ON

Procurement men expressed different opinions as to the best person to call on when soliciting contract work. Some said the president or highest executive of the company was the man to see because the initial letting of contract work was a policy decision generally not delegated to a subordinate. Another group of procurement men recommended the purchasing agent as the person to see, noting that in large industrial organizations he is a person with great responsibility with authority to make the policy decision. There were a few instances where the production manager, foreman, personnel manager, or public relations director was preferred for the solicitation of specialized types of contracts in his province.

Some persons interviewed pointed out that, even though top company executives most often were the ones who made the decision to contract work out, it could not be said that in all cases one man was the right person to see. They emphasized that employment and production people may not have final authority to give out work but may be instrumental in pointing out to decision-makers the advantages of doing so.

One procurement man expressed the general attitude of those who believed that only the top man should be contacted, when he stressed the importance of the fact that the purchasing agent cannot act unless he has a requisition from an executive in authority to purchase and does not assume initiative prior to such an authorization. It was felt by this solicitor that the biggest man was the hardest to get to but that he brought the best jobs to the workshop.

On the other hand, W. B. England[1] is emphatic in stating that it is a mistake for a salesman to bypass the purchasing executive, who is the best channel to the right technical man in the company. According to England, bypassing the purchasing agent is not a matter of hurting his feelings. It is a matter of violating sound rules of procedure and company policies that experience has proved to be of greater value to all concerned, buyer and seller alike. He continues:

> There are scores of salesmen and others making cold calls who fail to recognize that the head of today's

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[1] England, Wilbur B., *Procurement: Principles and Cases.* Richard D. Irwin, Inc., Homewood, Ill., 1962. Fourth edition. p. 418.

modern centralized purchasing department is fully conversant with his company's production and material requirements and is quite capable of determining whether a new product is of concern to his company. The purchasing agent is one of a co-operative group within a company, made up of engineering, planning, production, procurement, and sales and he is duty bound to see to it that technical men or salesmen with products of interest are given a full hearing and referred to technical department heads *when necessary* and not otherwise.

It appears to the study staff that, in normal industrial selling procedure, it is unlikely that a salesman would approach a new company of substantial size and ask to see the president. The customary sales approach is through the purchasing department. Approach through top executives is fairly clear-cut where the company is small and purchasing decisions definitely are not in the hands of a subordinate. Also, if the company has no previous experience or policy on the letting of work out of the plant the initial decision to subcontract will be made by a leading executive. The procurement man who is able to obtain background data on the prospect's organizational structure and subcontracting experience will be in a better position to determine what avenue to take. He is always safe in asking for the purchasing agent, but in many cases the sale cannot be made without executive approval.

SALES PRESENTATION

An analysis of the sales presentations made by the 44 contract procurement men revealed the following most frequently used selling points, which are listed in order of frequency mentioned:

1) description of the specific types of work performed in the workshop;
2) work is of top quality and will meet contractor specifications and the workshop will not undertake jobs beyond the skill level of its employees;
3) deliveries will be on schedule, service will be good, and deadlines will be adhered to;
4) prices will be competitive, there will be savings in cost if work is given out, or there is a fixed cost per 100 units, upon which the customer can base his selling price;
5) the workshop solicits "nuisance" jobs that do not fit into the contractors' regular operations;
6) on peak-load activity there is no necessity to hire extra labor and then lay them off — peak-load and overload work is particularly desired;
7) the workshop has special skills, in terms of both staff and workers, and is particularly adapted to doing the kind of work solicited;
8) highly skilled labor need not be used on jobs that can be performed by lesser skilled persons; on short-run or problem jobs regular skilled employees may show a lowered efficiency and morale due to disruptions of established routines;
9) the workshop serves as a resource to industry and should be regarded as a vendor of labor services;
10) the workshop offers outstanding supervision that guarantees quality work;
11) the workshop can offer assistance in engineering, manufacturing, and design problems;
12) the workshop can assist in providing extra space for storage and manufacturing;
13) the workshop has served important industrial firms in the community and their names are mentioned;
14) the specialized equipment of the workshop is discussed; contractors need not invest in new machinery;
15) prices and production figures on certain jobs performed are given as examples.

The majority of contract procurement men used the term "nuisance work" in their sales presentations. Two workshops cautioned against the use of this expression in view of what it might imply to the contractor. The type of work under discussion would be necessary for the completion of his product, and to call it nuisance work detracted from the actual service a workshop was giving to a customer. As one solicitor stated, "It is as if the dignity of the work is being undermined."

A full-time procurement man for a medium-sized workshop in a Middle Western industrial community used the phrase "incidental work" to describe jobs that are necessary for the completion of the final product and which the contractor prefers not to do. This procurement man believes that thinking in terms of doing "nuisance work" for industry leads to accepting a low or "nuisance price." Thinking of incidental work, necessary for completion of the finished product, results in higher prices for important work performed.

Other information in sales presentations included the following:

> A factual statement was made that the workshop uses handicapped persons. The majority of procurement men felt that it was important to provide this information but not to make an issue of it or to use it as a device to gain sympathy.
>
> Six of the solicitors stated they go into a complete explanation of workshop services, including objectives and methods of operation. Four other procurement specialists stated that they gave a brief explanation of rehabilitation.

Four of the persons interviewed said that they emphasized the social responsibility of the contractor to provide work to the workshop.

Five solicitors stated that they used a frank appeal to "Please give the handicapped a chance."

Emphasis on the workshop as a service to the handicapped as a selling point was strongly discouraged by some procurement men, who felt the workshop services should be sold on their merits. They felt that appeals to sympathy, charity, or good citizenship should be avoided. A number of salesmen warned about lengthy presentations.

Also of interest was the fact that a considerable number of the procurement men carried a brochure and presented it either at the beginning or at the end of interviews. At least six contract procurement men used the sales brochure as an opening wedge and built their sales presentations around it. Samples of work performed were carried by at least seven of the 44 men interviewed and in one case these samples filled a modest-sized briefcase. Three salesmen carried glossy photographs of the workshops and jobs being done. The use of stereo colored slides of workshop operations was mentioned by one.

OBJECTIONS TO SALES PRESENTATIONS

Procurement specialists were asked to discuss objections to or arguments against buying workshop services that were received from potential customers. The following contractor objections were the most frequently encountered:

	Number of Times Mentioned
The work is too complex; you cannot do what we need	19
The union won't allow us to give out work	19
You cannot meet our quality standards and production requirements	18
There is no work available; our own people aren't busy	17
Transportation costs would be too great	7
Your equipment is insufficient or inadequate	6
The cost of subcontracting is too great	6

Other less frequently mentioned objections concerned bad experiences with other workshops and unwillingness to take a chance with costly materials.

A limited number of contractors criticized workshops for exploiting workers and competing unfairly with industry. Generally these criticisms came from prospects who had an inadequate understanding of the workshop, and procurement men had to be competent to explain policies of wage payment based on productivity.

The following summarizes how the majority of contract procurement men countered contractor objections to the letting of contract work.

Work Is Too Complex for the Workshop

Procurement men felt that some statements to this effect were occasioned by an erroneous image of the workshop as an establishment engaged only in the simplest of tasks. In this case, the objection was not accepted by the procurement man without making his own evaluation. He asked to see the work or asked if he could tour the plant to see the types of work being performed and then pointed out the similarities to work being done in the workshop. He described in detail the types of work the workshop could perform, the diversity of skills available, and the ability of his staff to simplify tasks and break them down if necessary. If he felt sure of ability to handle the job, he invited the contractor to visit the workshop and inspect its facilities.

Complexity of jobs performed was demonstrated by samples that procurement men carried or submitted. The ability of the procurement man to discuss complex industrial processes was a factor in persuading contractors that more than elementary work could be undertaken. Placements of employees in skilled jobs was cited as evidence of the ability of workshops to perform at a high level.

When a procurement man agreed that the contractor was right in believing the work too complex for the workshop, he in most cases wisely accepted the fact that it should not be attempted and looked for other less complex jobs that would be suitable.

Workshop Cannot Meet Quality and Production Standards

When contractors stated that workshop quality and production would not measure up to their standards, procurement men countered with statements similar to those made when contractors said their work was too complex for the workshop. Inspection, production scheduling, and quality control systems were described; samples of work requiring careful inspection were shown; and contractors were invited to visit the workshop. In addition, the solicitor asked for permission to tour the factory to show similarities to jobs that the workshop had previously done. In other instances trial runs of work to demonstrate skills were asked for. Contractors were assured that rejection rates would be low and rejected work would be redone at workshop expense. Procurement men found the citing of satisfied customers known to the prospect to be helpful in overcoming doubts about quality of work and delivery. References to satisfied customers were made only if relationships were sound, with no hazard that negative reports would be given.

Procurement men who were knowledgeable in industrial production made this fact known discreetly during the sales presentation. Workshop representatives who were qualified to discuss production problems encouraged contractor inquiries of this type; those who were not well equipped in terms of industrial backgrounds referred to other staff with such technical skills.

No Work Available

When informed that no work was available, procurement men generally asked to be remembered in the event their services were needed at a future date. Some solicitors asked for a definite appointment for future callbacks. If it was felt that the answer of no work available was an easy way to dismiss the solicitor, the effective procurement man did all he could to insure that the contractor understood what jobs the shop could do and would keep him in mind if and when workshop services were needed.

Unions Will Not Permit Subcontracting

Of the 19 procurement men who said contractors cited unions as a reason for inability to give contract work, 11 stated that there was no answer to this objection. In such cases they crossed the company off their prospect list. Presumably, they believed it made little difference whether the contractor merely used this as an excuse for refusing to do business with a workshop; in either case that company was regarded as too difficult a prospect to warrant additional effort.

The other procurement men felt that a unionized plant was not an impossible prospect. Where unions were a problem and the contractor showed interest, the workshop asked for permission to discuss the problem with the union. In a number of instances workshops were able to obtain contract work from unionized plants when the union understood the role and purpose of the workshop. One contract from a unionized company was an excellent selling argument for work from others. However, if the union contract specifically prohibited subcontracting, the procedure in all cases was to thank the contractor and then withdraw.

Several procurement men recommended that the workshop ask for office work or other nonunionized work that could be done. A more complete discussion of workshop-union relationships is in Chapter VIII.

Transportation Costs Are Too High

Prospective contractors who regarded the cost of transportation as prohibitive often did not have an accurate analysis showing their total costs. When transportation costs were cited as reasons for not contracting work, procurement men asked for an opportunity to submit a bid that would include them. Frequently it was possible to prove that total costs including transportation were comparable to the cost of performing the job in the contractor's own plant. A number of contractors for whom costs were secondary insisted on transportation services. Workshops occasionally lost contracts because of their inability to assume all transportation responsibilities.

Costs of Contracting Are Too Great

Statements to the effect that it costs too much to subcontract were most frequently made by small companies that expected prices would include labor only without overhead. In response to such statements, procurement men asked for an opportunity to explain their bid and often had to discuss industrial bidding and pricing practices. It was explained that contract work had to be beneficial to both parties and, where realistic pricing policies could be interpreted, price objections were sometimes overcome.

Equipment Is Insufficient or Inadequate

If the contract was considered desirable and special equipment was required, procurement men first attempted to have the contractor supply or loan equipment to the workshop. Most jobs requiring specialized equipment that the workshop did not have were passed up. If the job presented prospects for long-term contracts that would eventually pay for the initial purchase cost of equipment, a decision to accept or not accept the contract was based on the economic factors involved, the need for work, the training aspects of the job, workshop space, and other individual factors that varied from shop to shop.

CALLS AND RECALLS

There was some disagreement among contract procurement personnel about the value of repeated calls on unsold customers. Twenty-five of the procurement men might be said to belong to the school of persistent salesmen who believe in the adage that you have to make calls to get results. These 25 frequently made such comments as “Don't let them forget you”; “If they have a product we can handle, we will call indefinitely”; “It takes a very severe rebuff to cancel out a company”; “A constant reminder is needed”; or “Don't give up.” This group cited cases where persistence paid off. In one case it took eight years of constant calling on a certain company to get the first contract. Instances of three years of continued calling were not uncommon. Persistence was, of course, on a selected basis. Repeated calls were made because the solicitor felt the prospect had potential. As one stated, “I knew there was a job there, and I called until I got it.”

Persistent procurement men pointed out the problem of being at the right place at the right time. Many contractors are in need of services only at certain times of the year and, if these critical periods are not known to the solicitor, it is only through repeated calls that the workshop may be considered. These procurement men felt that contractors do not have good memories or else do not wish to maintain copious files on possible sources of contract work.

A second group of nine procurement men stated that they appreciated the necessity for keeping the prospect informed of the workshop's availability but did not have the aggressive attitude about repeated selling expressed by the first group. Two or three calls a year might be made to the most desirable companies, but as a rule aggressive salesmanship was not practiced.

Ten procurement men expressed the belief that it hardly paid to continue pursuing prospects that gave a definite negative reply on the first or second calls. Some of them said that, if a sale could not be made after one or two calls, the possibility of getting a contract was remote and further calls would antagonize the customer. One man stated that he did not like to make "a pest" of himself. This group in general felt that the time and cost involved in repeated contacts were not justified in terms of the results obtained.

In some cases the belief that persistent calling is not indicated can be explained by the workshop's fortunate position in having sufficient contract work. In others, the inability to handle certain types of work because of space limitations may be responsible for the low-geared sales effort.

One knowledgeable director stressed that a large number of calls is no guarantee of intensive sales effort and that he does not demand a large number of calls from his procurement man; he is more concerned with proper selling even if one call takes all day. This same director believes that many sales people take the course of least resistance and concentrate on customers who are "easy sells" in the hope that this will be sufficient. "The best jobs really lie with the tough customers who need to be convinced that, if you get the job, you'll give it your best efforts," he said.

On the basis of these interviews, it cannot be stated that one approach is definitely correct and the other incorrect. Contractors frequently commented that workshop services were not sufficiently known and suggested more frequent calls.

A. O. SMITH CORPORATION SURVEY OF SALESMEN

Pertinent to this discussion is a survey conducted by the A. O. Smith Corporation of Milwaukee, Wis., and reported in a news article in the April 29, 1961, issue of *Business Week* magazine. The merchandise director of this corporation asked 30 procurement supervisors what they thought about salesmen. Although the salesmen under discussion were industrial salesmen and not solicitors of contracts for workshops, the procurement supervisors' observations and comments about the thousands of salesmen they met should be helpful to workshop procurement men.

Personality and Habits

1. Three-fourths of them waste time with idle talk.
2. More than half of them talk too much.
3. One-third of these salesmen lack enthusiasm.
4. About one-tenth call too often.

Approach

1. More than half lean too heavily on personal acquaintance.
2. One-third try to bypass purchasing people to get to engineers and production men.
3. About one-third depend on influence and pressure.
4. About one out of seven thinks he can "buy you" with lunch.

Sales Presentation

1. Only about one-fourth try to learn the customer's problems and needs.
2. Some do not know their own product.
3. Many present an ineffective message.
4. Some merely take orders.

Follow-Through

1. More than half fail to help with service.
2. More than one-fourth do not follow the status of orders or delivery after they get an order.

PROCUREMENT SPECIALIST RECORDS

Twelve of the 44 procurement men interviewed said they kept no specialized records at all. However, none of these 12 was a full-time salesman. Twenty-four procurement men kept files on the results of their calls and the majority of these also maintained well-organized prospect lists. Sometimes these two subjects were combined into one record and sometimes the information was on two separate forms.

Procurement men's records generally contained columns for dates, names and addresses of company, name and title of person contacted, whether contact was in person or by telephone, and space for comments and results of call. Some of the more detailed records encountered included data on products, number of employees, capitalization, and peak seasons. Occasionally, procurement records were set up in tickler file fashion so that calls could be made to coincide with peak seasons or previously scheduled recall dates. One workshop used a McBee Keysort card to record such data, which could then be used for various types of analytical and follow-up purposes.

Where the procurement man was also responsible for pricing, he sometimes kept records of bids submitted on each job along with job breakdowns by the elements involved.

One system showed results of calls in a receptivity scale, which was a line with a notation of "favorable" on one end and a notation of "unfavorable" on the other. An X was placed on the line at the point between these two extremes that in the judgment of the procurement man would describe the reaction he received from his call. Responses close to the favorable side of the scale became prime targets for follow-up.

In one small workshop without a procurement man, a 5″ x 8″ card file containing data referred to above was kept in the office and made available to staff members. All contact with the contractor or prospect was recorded on this card, including placement efforts, delivery dates, and complaints. The staff (in this case very small) was encouraged to make use of this central record and consulted it frequently.

Most records examined were mimeographed and prepared in the workshop. In a few cases standard forms purchased from stationery supply houses were used.

PROCUREMENT MAN'S RESPONSIBILITY FOR PRICING

When asked if they were responsible for determining contract prices, the 44 procurement men responded as follows: 22 had full and total responsibility for setting prices, 7 had no pricing responsibilities, and 15 set the price in co-operation with or after review by other staff members.

It was generally agreed in most of the workshops that the procurement man should have an understanding of the pricing process and be involved in it. One director was emphatic in his belief that the procurement man should do the whole job, including bidding, estimating, production planning, and liaison. He felt that the salesman should have an industrial background and should maintain close ties with the workshop director and understand the clients. Most directors did not go this far in their requirements for a procurement man but agreed on their preference for a man with an industrial background who would eventually assume a good share of the workshop's pricing responsibilities.

Some workshop directors cautioned against having only one person in the workshop competent to price a job because in such instances there was the danger that he would "give the store away" to provide necessary employment to workshop personnel. These directors felt that workshops need more than one person qualified to estimate and bid on a job to provide a proper balance and check on low or improper pricing.

LIAISON RESPONSIBILITIES OF PROCUREMENT MAN

For the most part it can be said that workshops expected their procurement personnel to maintain liaison with contractors even if this liaison responsibility was limited. Many procurement men felt that liaison responsibility increased their status and was beneficial to them in the future solicitation of work.

Thirty-seven of the 44 contract procurement men had some liaison responsibilities; 21 of this number had sole liaison responsibility, and 16 shared the responsibility with other staff members. Of the seven procurement men who had no contractor liaison responsibilities, three were full-time procurement men.

In a 1960 study[2] where daily time records were kept of staff activities for approximately three weeks, six workshop directors reported that, on the average, seven percent of their total time was spent in contractor liaison. In these six workshops actual liaison time ranged from 5 to 17 percent of the directors' total time.

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[2] Mott, Basil J. F., *Financing and Operating Rehabilitation Centers and Facilities.* National Society for Crippled Children and Adults, Inc., Chicago, Ill., 1960.

CHAPTER V

PUBLIC RELATIONS AND PROMOTIONAL ASPECTS OF CONTRACT PROCUREMENT

Promotional materials and public relations activity found useful in approaches to industry when contracts are being sought will be discussed in terms of contract procurement publicity, direct mail campaigns and letters, and procurement brochures and sales literature.

Publicity

Several of the participating workshops had intensive year-round publicity programs designed to keep the name of the workshop before the public. These programs involved regular releases to newspapers, articles submitted to local periodicals, television and radio spot announcements, open houses, and public speaking engagements. While it is not possible to correlate directly the effect of publicity on contract procurement, it is clear that it makes the work of the salesman easier.

Some workshops found that their representatives had little difficulty in securing a hearing from prospects but that much time was lost in providing general information about the organization and its policies. This part of their story was the same for all prospects and could be conveyed equally well by printed messages preceding the salesman's call. Reprints of articles appearing in local magazines describing workshop services in general and the need for contract work were effectively used as mailing or give-away pieces by several workshops.

All of the workshops had public speaking programs and, in fact, public speaking engagements occupied a fair proportion of each director's time. Many of the talks were for the purpose of eliciting general public support of the workshop's program. Of prime importance from the procurement point of view were addresses such as those to service clubs that were pinpointed directly to industrial representatives in a position to give contracts to workshops.

Directors who were able to secure regular periodic newspaper publicity felt that the long-run effects were most beneficial, although most of them knew that the insertion of a favorable newspaper story accompanied by photographs should not be expected to result in a deluge of telephone calls offering contract work. All recognized the need for continuous newspaper, radio, and television publicity as adjuncts to a program of contract procurement.

The experience in one workshop pointed up the necessity for accuracy and proper emphasis if the publicity is to achieve its purpose of securing more contract work. In this instance, a newspaper reporter edited an article given to him by the workshop to stress the services rendered to the aged or disabled worker who was supplementing his pension by employment in the workshop. After this article was published, no inquiries were received from contractors but many requests for employment were received from retired workers looking for jobs.

Some workshops had received free radio and television time for spot announcements. One of the more interesting publicity techniques observed was the use of tape-recorded testimonials from contractors. The tape, quoting satisfied customers who recommended workshop services to other businessmen, was used by a local radio station at regular intervals. According to the workshop director, this device was more effective than other types of spot announcements or regular addresses by workshop personnel.

Another interesting form of publicity provided by a contractor was billboard advertising promoting the workshop. Billboards, placed at strategic locations along busy highways, carried large pictures of the interior of the workshop and information pointing out that the workshop did quality work for industry and provided industrial training for handicapped persons. The name of the industrial firm donating the billboard was also prominently displayed with the notation that the billboard was "through the courtesy" of this company.

In summary, it can be stated that workshop directors as a group recognized the need for continuous public education and publicity to increase the businesss community's knowledge of the existence of the workshop and the services offered. However, it was understood that publicity is only one aspect of the procurement process. Personal selling by workshop representatives was regarded as the most important element in an adequate contract procurement program.

Direct Mail

Only two of the contracts in the sample of those studied originated from letters of solicitation—generally referred to as direct mail. This fact, however, is not entirely indicative of the importance of direct mail in the contract procurement process. All workshops in the study utilized letters of solicitation, and some undertook periodic intensive direct mail campaigns. Direct mail campaigns were regarded by the latter as part of an over-all procurement program and as an aid to the solicitation process.

Direct mail assumes greater importance during a workshop's formative period, when it is attempting to get its first contracts and become known in the community. One workshop director who published a report of good results with direct mail campaigns[1] later told the study interviewer that he now uses direct mail less often because the majority of contracts come in repeat business from regular contractors and in new accounts referred by satisfied customers. The article referred to stresses certain procedures:

1. Mailings are selective to specified industries that offer the best prospects for workshop services. Addresses are generally obtained from industrial directories.
2. Letters are always addressed to individuals rather than titles.
3. Mailings are timed to precede the industry's busy season.
4. Letters are short and to the point.
5. Letters solicit contracts, not charity.

Workshop directors reported varying success in direct mail efforts. For example, one workshop cited a mailing of 2,000 letters that did not bring a single response. Others recalled favorable responses that produced contracts when followed up at a later date.

As used by the workshops, direct mail was not confined to the traditional letter of solicitation but included mimeographed or printed flyers sent out monthly to selected industries. Usually these were attention-getting devices of professional quality and were mailed to coincide with industry's peak seasons. Some of the flyers contained cartoons and stressed services to industry in only one or two paragraphs. Frequently the preparation of the direct mail campaign was under the auspices of a board member or a public relations person employed in a board member's organization.

In one instance a direct mail solicitation for the workshop used the letterhead of an industrial firm. It was hoped that the prospect who received a first class letter from a large well-known industrial firm would read it even if the opening paragraph began: "In the near future a representative of the ______________________ workshop will be calling on you to see if you have any subcontract work they might undertake . . ." Where interested board members and volunteers were willing to provide letterheads, creative time, and the influence of their signatures, access to purchasing executives was reported to be easier. A similar technique sometimes used was to have board members who were leading industrialists sign regular letters of solicitation sent on workshop letterhead. The prestige of their signatures was felt to be effective in the total sales effort.

Other traditional direct devices or techniques seen included enclosures of blotters, colored stickers to be placed on the outer cover of telephone books, bookmarks, matchbooks, and other advertising specialties. The use of letter gadgets, devices that are fastened to the letter to attract attention, was noted in two workshops. A swatch of material was pasted to a letter addressed to firms that might need swatching services and the letter opened with a catchy statement about next season's line. Another gadget was a Pliofilm envelope stapled to the letter containing a nut and a nail. The opening line of the letter in capitals read: "From nuts to nails — what are your packaging requirements?"

Sample letters of solicitation were obtained from the workshops participating in the study and their contents analyzed. The points stressed in direct mail letters were similar to the statements made by procurement men in their sales presentations (See Chapter IV). Most often letters of solicitation contained the following elements:

1. Services offered were specifically listed, *i.e.*, packaging, collating.
2. The benefits to the contractor were stated.
3. Quality, production schedules, and competitive prices were mentioned.
4. Satisfied customers for whom work had been done were listed.
5. An opportunity to call and explain the services was requested. Frequently a return post card to indicate contractor interest was enclosed.
6. A brief statement on the workshop's purposes, organization, and employees was frequently included.
7. A brochure describing the workshop and its services was sometimes enclosed with the letter.

Only one letter was more than one page in length. For the most part, letters were short and direct and were designed to hold the reader's attention. An introductory build-up about rehabilitation services was seldom used, although a brief mention of rehabilitation and workshop objectives frequently appeared in the body or near the end of the letter.

It is one of the peculiarities of direct mail promotion that everyone believes that his letter is the best. Also, each person believes that he can improve upon a suggested letter. Consequently, the following examples of letters successfully used by sheltered workshops are not given because they are believed to be the ultimate or outstanding suggestions; they are given with the understanding that each workshop planning to use a direct mail approach will draw upon them only for ideas in the preparation of letters suitable for its individual purposes.

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[1] Dubrow, Max, Work Procurement and Job Production. *American Journal of Mental Deficiency*. Sept., 1958. p. 356.

Examples of General Sales Letters

Dear Mr. ________________:

Our workshop, which is approximately________square feet with________disabled workers, performs industrial subcontracting such as mechanical assembly work, packaging, and jobs requiring excessive handwork.

We function in the same way as industry does with production control, cost accounting, and inventory control procedures. Our goal is for the workers to achieve occupational independence through learning to become good employees for industry.

__________Corp.,__________Co.,__________Corp., and other major industries in the area have approved us for subcontract work. We will not accept your work if we cannot meet your specifications.

If you return the enclosed self-addressed post card to us, a workshop representative will be happy to explain our services in greater detail and submit a bid on any work you wish done. Our prices are competitive and the quality of our work meets industrial standards.

Sincerely yours,

* * * * *

Dear Mr.________________:

Much of today's creative advertising requires preassembly and packaging.

The__________workshop handles many special problems: mobiles, small displays, swatching sales books, collating, pasting, mailings. Work is done on schedule, to your specifications and at competitive rates.

The__________workshop provides sheltered work for __________disabled persons. Call (telephone number) or return the enclosed card so our representative may call on you.

Sincerely yours,

* * * * *

Dear Mr.________________:

Enclosed is a brochure introducing, in brief, a program designed primarily for handicapped persons to achieve a degree of occupational independence. Our workshop of________square feet and having a capacity of________ workers is designed to suit your needs.

We subcontract work from numerous industries in ______________on a competitive basis. It has been our pleasure to serve a number of businesses similar to yours in gathering, collating, and simple binding of advertising materials, pamphlets, and displays. We also pick up and deliver to suit the contractor's needs.

If there is doubt as to your company submitting a bid to a customer because of excessive or even minimal handwork, give us a call and our estimator will look the work over and submit a bid to you. We will not accept your work if we cannot meet your specifications. It is your decision to accept or reject the bid.

We look forward to hearing from you in the near future.

Yours truly,

Examples of Single Flyers for Direct Mail Solicitation

Example 1

Drawing of a
Mother Kangaroo with
pouch full of baby
kangaroos struggling to
get inside

MRS. KANGAROO HAS A
PACKAGING PROBLEM

A Shortage of Space and
FAST GROWING
PRODUCTION

Industry encounters these same problems at certain times. To assist you in your packaging needs, we offer the facilities of our spacious shop and__________trained and experienced workers.

Quality workmanship . . . high production . . . large and small orders . . . competitive prices . . . over________ years of experience . . all add up to customer satisfaction!

We also specialize in parts assembly and light machine operations .

Mrs. Kangaroo will have to solve her own problem, but it's quite possible our subcontract service could be of considerable assistance and value to you.

We Invite Your Inquiry
(Name and Address of Workshop)
(Telephone Number)

* * * * *

Example 2

BREAKING IN

Drawing of a cowboy
breaking in a pony

It's time for "breaking in" on new business!

Being a "job shop" we are constantly on the search for new industries that may use our services.

What do we have to offer *YOU* on subcontract assembly, packaging, or light machine work?

- __________square feet of shop space — a large pool of skilled workers
- Guarantee of quality workmanship and production
- Rigid inspection and testing standards to insure customer satisfaction

modern centralized purchasing department is fully conversant with his company's production and material requirements and is quite capable of determining whether a new product is of concern to his company. The purchasing agent is one of a co-operative group within a company, made up of engineering, planning, production, procurement, and sales and he is duty bound to see to it that technical men or salesmen with products of interest are given a full hearing and referred to technical department heads *when necessary* and not otherwise.

It appears to the study staff that, in normal industrial selling procedure, it is unlikely that a salesman would approach a new company of substantial size and ask to see the president. The customary sales approach is through the purchasing department. Approach through top executives is fairly clear-cut where the company is small and purchasing decisions definitely are not in the hands of a subordinate. Also, if the company has no previous experience or policy on the letting of work out of the plant the initial decision to subcontract will be made by a leading executive. The procurement man who is able to obtain background data on the prospect's organizational structure and subcontracting experience will be in a better position to determine what avenue to take. He is always safe in asking for the purchasing agent, but in many cases the sale cannot be made without executive approval.

SALES PRESENTATION

An analysis of the sales presentations made by the 44 contract procurement men revealed the following most frequently used selling points, which are listed in order of frequency mentioned:

1) description of the specific types of work performed in the workshop;

2) work is of top quality and will meet contractor specifications and the workshop will not undertake jobs beyond the skill level of its employees;

3) deliveries will be on schedule, service will be good, and deadlines will be adhered to;

4) prices will be competitive, there will be savings in cost if work is given out, or there is a fixed cost per 100 units, upon which the customer can base his selling price;

5) the workshop solicits "nuisance" jobs that do not fit into the contractors' regular operations;

6) on peak-load activity there is no necessity to hire extra labor and then lay them off — peak-load and overload work is particularly desired;

7) the workshop has special skills, in terms of both staff and workers, and is particularly adapted to doing the kind of work solicited;

8) highly skilled labor need not be used on jobs that can be performed by lesser skilled persons; on short-run or problem jobs regular skilled employees may show a lowered efficiency and morale due to disruptions of established routines;

9) the workshop serves as a resource to industry and should be regarded as a vendor of labor services;

10) the workshop offers outstanding supervision that guarantees quality work;

11) the workshop can offer assistance in engineering, manufacturing, and design problems;

12) the workshop can assist in providing extra space for storage and manufacturing;

13) the workshop has served important industrial firms in the community and their names are mentioned;

14) the specialized equipment of the workshop is discussed; contractors need not invest in new machinery;

15) prices and production figures on certain jobs performed are given as examples.

The majority of contract procurement men used the term "nuisance work" in their sales presentations. Two workshops cautioned against the use of this expression in view of what it might imply to the contractor. The type of work under discussion would be necessary for the completion of his product, and to call it nuisance work detracted from the actual service a workshop was giving to a customer. As one solicitor stated, "It is as if the dignity of the work is being undermined."

A full-time procurement man for a medium-sized workshop in a Middle Western industrial community used the phrase "incidental work" to describe jobs that are necessary for the completion of the final product and which the contractor prefers not to do. This procurement man believes that thinking in terms of doing "nuisance work" for industry leads to accepting a low or "nuisance price." Thinking of incidental work, necessary for completion of the finished product, results in higher prices for important work performed.

Other information in sales presentations included the following:

> A factual statement was made that the workshop uses handicapped persons. The majority of procurement men felt that it was important to provide this information but not to make an issue of it or to use it as a device to gain sympathy.
>
> Six of the solicitors stated they go into a complete explanation of workshop services, including objectives and methods of operation. Four other procurement specialists stated that they gave a brief explanation of rehabilitation.

Four of the persons interviewed said that they emphasized the social responsibility of the contractor to provide work to the workshop.

Five solicitors stated that they used a frank appeal to "Please give the handicapped a chance."

Emphasis on the workshop as a service to the handicapped as a selling point was strongly discouraged by some procurement men, who felt the workshop services should be sold on their merits. They felt that appeals to sympathy, charity, or good citizenship should be avoided. A number of salesmen warned about lengthy presentations.

Also of interest was the fact that a considerable number of the procurement men carried a brochure and presented it either at the beginning or at the end of interviews. At least six contract procurement men used the sales brochure as an opening wedge and built their sales presentations around it. Samples of work performed were carried by at least seven of the 44 men interviewed and in one case these samples filled a modest-sized briefcase. Three salesmen carried glossy photographs of the workshops and jobs being done. The use of stereo colored slides of workshop operations was mentioned by one.

OBJECTIONS TO SALES PRESENTATIONS

Procurement specialists were asked to discuss objections to or arguments against buying workshop services that were received from potential customers. The following contractor objections were the most frequently encountered:

	Number of Times Mentioned
The work is too complex; you cannot do what we need	19
The union won't allow us to give out work	19
You cannot meet our quality standards and production requirements	18
There is no work available; our own people aren't busy	17
Transportation costs would be too great	7
Your equipment is insufficient or inadequate	6
The cost of subcontracting is too great	6

Other less frequently mentioned objections concerned bad experiences with other workshops and unwillingness to take a chance with costly materials.

A limited number of contractors criticized workshops for exploiting workers and competing unfairly with industry. Generally these criticisms came from prospects who had an inadequate understanding of the workshop, and procurement men had to be competent to explain policies of wage payment based on productivity.

The following summarizes how the majority of contract procurement men countered contractor objections to the letting of contract work.

Work Is Too Complex for the Workshop

Procurement men felt that some statements to this effect were occasioned by an erroneous image of the workshop as an establishment engaged only in the simplest of tasks. In this case, the objection was not accepted by the procurement man without making his own evaluation. He asked to see the work or asked if he could tour the plant to see the types of work being performed and then pointed out the similarities to work being done in the workshop. He described in detail the types of work the workshop could perform, the diversity of skills available, and the ability of his staff to simplify tasks and break them down if necessary. If he felt sure of ability to handle the job, he invited the contractor to visit the workshop and inspect its facilities.

Complexity of jobs performed was demonstrated by samples that procurement men carried or submitted. The ability of the procurement man to discuss complex industrial processes was a factor in persuading contractors that more than elementary work could be undertaken. Placements of employees in skilled jobs was cited as evidence of the ability of workshops to perform at a high level.

When a procurement man agreed that the contractor was right in believing the work too complex for the workshop, he in most cases wisely accepted the fact that it should not be attempted and looked for other less complex jobs that would be suitable.

Workshop Cannot Meet Quality and Production Standards

When contractors stated that workshop quality and production would not measure up to their standards, procurement men countered with statements similar to those made when contractors said their work was too complex for the workshop. Inspection, production scheduling, and quality control systems were described; samples of work requiring careful inspection were shown; and contractors were invited to visit the workshop. In addition, the solicitor asked for permission to tour the factory to show similarities to jobs that the workshop had previously done. In other instances trial runs of work to demonstrate skills were asked for. Contractors were assured that rejection rates would be low and rejected work would be redone at workshop expense. Procurement men found the citing of satisfied customers known to the prospect to be helpful in overcoming doubts about quality of work and delivery. References to satisfied customers were made only if relationships were sound, with no hazard that negative reports would be given.

Procurement men who were knowledgeable in industrial production made this fact known discreetly during the sales presentation. Workshop representatives who were qualified to discuss production problems encouraged contractor inquiries of this type; those who were not well equipped in terms of industrial backgrounds referred to other staff with such technical skills.

No Work Available

When informed that no work was available, procurement men generally asked to be remembered in the event their services were needed at a future date. Some solicitors asked for a definite appointment for future callbacks. If it was felt that the answer of no work available was an easy way to dismiss the solicitor, the effective procurement man did all he could to insure that the contractor understood what jobs the shop could do and would keep him in mind if and when workshop services were needed.

Unions Will Not Permit Subcontracting

Of the 19 procurement men who said contractors cited unions as a reason for inability to give contract work, 11 stated that there was no answer to this objection. In such cases they crossed the company off their prospect list. Presumably, they believed it made little difference whether the contractor merely used this as an excuse for refusing to do business with a workshop; in either case that company was regarded as too difficult a prospect to warrant additional effort.

The other procurement men felt that a unionized plant was not an impossible prospect. Where unions were a problem and the contractor showed interest, the workshop asked for permission to discuss the problem with the union. In a number of instances workshops were able to obtain contract work from unionized plants when the union understood the role and purpose of the workshop. One contract from a unionized company was an excellent selling argument for work from others. However, if the union contract specifically prohibited subcontracting, the procedure in all cases was to thank the contractor and then withdraw.

Several procurement men recommended that the workshop ask for office work or other nonunionized work that could be done. A more complete discussion of workshop-union relationships is in Chapter VIII.

Transportation Costs Are Too High

Prospective contractors who regarded the cost of transportation as prohibitive often did not have an accurate analysis showing their total costs. When transportation costs were cited as reasons for not contracting work, procurement men asked for an opportunity to submit a bid that would include them. Frequently it was possible to prove that total costs including transportation were comparable to the cost of performing the job in the contractor's own plant. A number of contractors for whom costs were secondary insisted on transportation services. Workshops occasionally lost contracts because of their inability to assume all transportation responsibilities.

Costs of Contracting Are Too Great

Statements to the effect that it costs too much to subcontract were most frequently made by small companies that expected prices would include labor only without overhead. In response to such statements, procurement men asked for an opportunity to explain their bid and often had to discuss industrial bidding and pricing practices. It was explained that contract work had to be beneficial to both parties and, where realistic pricing policies could be interpreted, price objections were sometimes overcome.

Equipment Is Insufficient or Inadequate

If the contract was considered desirable and special equipment was required, procurement men first attempted to have the contractor supply or loan equipment to the workshop. Most jobs requiring specialized equipment that the workshop did not have were passed up. If the job presented prospects for long-term contracts that would eventually pay for the initial purchase cost of equipment, a decision to accept or not accept the contract was based on the economic factors involved, the need for work, the training aspects of the job, workshop space, and other individual factors that varied from shop to shop.

CALLS AND RECALLS

There was some disagreement among contract procurement personnel about the value of repeated calls on unsold customers. Twenty-five of the procurement men might be said to belong to the school of persistent salesmen who believe in the adage that you have to make calls to get results. These 25 frequently made such comments as "Don't let them forget you"; "If they have a product we can handle, we will call indefinitely"; "It takes a very severe rebuff to cancel out a company"; "A constant reminder is needed"; or "Don't give up." This group cited cases where persistence paid off. In one case it took eight years of constant calling on a certain company to get the first contract. Instances of three years of continued calling were not uncommon. Persistence was, of course, on a selected basis. Repeated calls were made because the solicitor felt the prospect had potential. As one stated, "I knew there was a job there, and I called until I got it."

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A second group of nine procurement men stated that they appreciated the necessity for keeping the prospect informed of the workshop's availability but did not have the aggressive attitude about repeated selling expressed by the first group. Two or three calls a year might be made to the most desirable companies, but as a rule aggressive salesmanship was not practiced.

Ten procurement men expressed the belief that it hardly paid to continue pursuing prospects that gave a definite negative reply on the first or second calls. Some of them said that, if a sale could not be made after one or two calls, the possibility of getting a contract was remote and further calls would antagonize the customer. One man stated that he did not like to make "a pest" of himself. This group in general felt that the time and cost involved in repeated contacts were not justified in terms of the results obtained.

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On the basis of these interviews, it cannot be stated that one approach is definitely correct and the other incorrect. Contractors frequently commented that workshop services were not sufficiently known and suggested more frequent calls.

A. O. SMITH CORPORATION SURVEY OF SALESMEN

Pertinent to this discussion is a survey conducted by the A. O. Smith Corporation of Milwaukee, Wis., and reported in a news article in the April 29, 1961, issue of *Business Week* magazine. The merchandise director of this corporation asked 30 procurement supervisors what they thought about salesmen. Although the salesmen under discussion were industrial salesmen and not solicitors of contracts for workshops, the procurement supervisors' observations and comments about the thousands of salesmen they met should be helpful to workshop procurement men.

Personality and Habits

1. Three-fourths of them waste time with idle talk.
2. More than half of them talk too much.
3. One-third of these salesmen lack enthusiasm.
4. About one-tenth call too often.

Approach

1. More than half lean too heavily on personal acquaintance.
2. One-third try to bypass purchasing people to get to engineers and production men.
3. About one-third depend on influence and pressure.
4. About one out of seven thinks he can "buy you" with lunch.

Sales Presentation

1. Only about one-fourth try to learn the customer's problems and needs.
2. Some do not know their own product.
3. Many present an ineffective message.
4. Some merely take orders.

Follow-Through

1. More than half fail to help with service.
2. More than one-fourth do not follow the status of orders or delivery after they get an order.

PROCUREMENT SPECIALIST RECORDS

Twelve of the 44 procurement men interviewed said they kept no specialized records at all. However, none of these 12 was a full-time salesman. Twenty-four procurement men kept files on the results of their calls and the majority of these also maintained well-organized prospect lists. Sometimes these two subjects were combined into one record and sometimes the information was on two separate forms.

Procurement men's records generally contained columns for dates, names and addresses of company, name and title of person contacted, whether contact was in person or by telephone, and space for comments and results of call. Some of the more detailed records encountered included data on products, number of employees, capitalization, and peak seasons. Occasionally, procurement records were set up in tickler file fashion so that calls could be made to coincide with peak seasons or previously scheduled recall dates. One workshop used a McBee Keysort card to record such data, which could then be used for various types of analytical and follow-up purposes.

Where the procurement man was also responsible for pricing, he sometimes kept records of bids submitted on each job along with job breakdowns by the elements involved.

One system showed results of calls in a receptivity scale, which was a line with a notation of "favorable" on one end and a notation of "unfavorable" on the other. An X was placed on the line at the point between these two extremes that in the judgment of the procurement man would describe the reaction he received from his call. Responses close to the favorable side of the scale became prime targets for follow-up.

In one small workshop without a procurement man, a 5″ x 8″ card file containing data referred to above was kept in the office and made available to staff members. All contact with the contractor or prospect was recorded on this card, including placement efforts, delivery dates, and complaints. The staff (in this case very small) was encouraged to make use of this central record and consulted it frequently.

Most records examined were mimeographed and prepared in the workshop. In a few cases standard forms purchased from stationery supply houses were used.

PROCUREMENT MAN'S RESPONSIBILITY FOR PRICING

When asked if they were responsible for determining contract prices, the 44 procurement men responded as follows: 22 had full and total responsibility for setting prices, 7 had no pricing responsibilities, and 15 set the price in co-operation with or after review by other staff members.

It was generally agreed in most of the workshops that the procurement man should have an understanding of the pricing process and be involved in it. One director was emphatic in his belief that the procurement man should do the whole job, including bidding, estimating, production planning, and liaison. He felt that the salesman should have an industrial background and should maintain close ties with the workshop director and understand the clients. Most directors did not go this far in their requirements for a procurement man but agreed on their preference for a man with an industrial background who would eventually assume a good share of the workshop's pricing responsibilities.

Some workshop directors cautioned against having only one person in the workshop competent to price a job because in such instances there was the danger that he would "give the store away" to provide necessary employment to workshop personnel. These directors felt that workshops need more than one person qualified to estimate and bid on a job to provide a proper balance and check on low or improper pricing.

LIAISON RESPONSIBILITIES OF PROCUREMENT MAN

For the most part it can be said that workshops expected their procurement personnel to maintain liaison with contractors even if this liaison responsibility was limited. Many procurement men felt that liaison responsibility increased their status and was beneficial to them in the future solicitation of work.

Thirty-seven of the 44 contract procurement men had some liaison responsibilities; 21 of this number had sole liaison responsibility, and 16 shared the responsibility with other staff members. Of the seven procurement men who had no contractor liaison responsibilities, three were full-time procurement men.

In a 1960 study[2] where daily time records were kept of staff activities for approximately three weeks, six workshop directors reported that, on the average, seven percent of their total time was spent in contractor liaison. In these six workshops actual liaison time ranged from 5 to 17 percent of the directors' total time.

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[2] Mott, Basil J. F., *Financing and Operating Rehabilitation Centers and Facilities.* National Society for Crippled Children and Adults, Inc., Chicago, Ill., 1960.

CHAPTER V

PUBLIC RELATIONS AND PROMOTIONAL ASPECTS OF CONTRACT PROCUREMENT

Promotional materials and public relations activity found useful in approaches to industry when contracts are being sought will be discussed in terms of contract procurement publicity, direct mail campaigns and letters, and procurement brochures and sales literature.

Publicity

Several of the participating workshops had intensive year-round publicity programs designed to keep the name of the workshop before the public. These programs involved regular releases to newspapers, articles submitted to local periodicals, television and radio spot announcements, open houses, and public speaking engagements. While it is not possible to correlate directly the effect of publicity on contract procurement, it is clear that it makes the work of the salesman easier.

Some workshops found that their representatives had little difficulty in securing a hearing from prospects but that much time was lost in providing general information about the organization and its policies. This part of their story was the same for all prospects and could be conveyed equally well by printed messages preceding the salesman's call. Reprints of articles appearing in local magazines describing workshop services in general and the need for contract work were effectively used as mailing or give-away pieces by several workshops.

All of the workshops had public speaking programs and, in fact, public speaking engagements occupied a fair proportion of each director's time. Many of the talks were for the purpose of eliciting general public support of the workshop's program. Of prime importance from the procurement point of view were addresses such as those to service clubs that were pinpointed directly to industrial representatives in a position to give contracts to workshops.

Directors who were able to secure regular periodic newspaper publicity felt that the long-run effects were most beneficial, although most of them knew that the insertion of a favorable newspaper story accompanied by photographs should not be expected to result in a deluge of telephone calls offering contract work. All recognized the need for continuous newspaper, radio, and television publicity as adjuncts to a program of contract procurement.

The experience in one workshop pointed up the necessity for accuracy and proper emphasis if the publicity is to achieve its purpose of securing more contract work. In this instance, a newspaper reporter edited an article given to him by the workshop to stress the services rendered to the aged or disabled worker who was supplementing his pension by employment in the workshop. After this article was published, no inquiries were received from contractors but many requests for employment were received from retired workers looking for jobs.

Some workshops had received free radio and television time for spot announcements. One of the more interesting publicity techniques observed was the use of tape-recorded testimonials from contractors. The tape, quoting satisfied customers who recommended workshop services to other businessmen, was used by a local radio station at regular intervals. According to the workshop director, this device was more effective than other types of spot announcements or regular addresses by workshop personnel.

Another interesting form of publicity provided by a contractor was billboard advertising promoting the workshop. Billboards, placed at strategic locations along busy highways, carried large pictures of the interior of the workshop and information pointing out that the workshop did quality work for industry and provided industrial training for handicapped persons. The name of the industrial firm donating the billboard was also prominently displayed with the notation that the billboard was "through the courtesy" of this company.

In summary, it can be stated that workshop directors as a group recognized the need for continuous public education and publicity to increase the businesss community's knowledge of the existence of the workshop and the services offered. However, it was understood that publicity is only one aspect of the procurement process. Personal selling by workshop representatives was regarded as the most important element in an adequate contract procurement program.

Direct Mail

Only two of the contracts in the sample of those studied originated from letters of solicitation—generally referred to as direct mail. This fact, however, is not entirely indicative of the importance of direct mail in the contract procurement process. All workshops in the study utilized letters of solicitation, and some undertook periodic intensive direct mail campaigns. Direct mail campaigns were regarded by the latter as part of an over-all procurement program and as an aid to the solicitation process.

Direct mail assumes greater importance during a workshop's formative period, when it is attempting to get its first contracts and become known in the community. One workshop director who published a report of good results with direct mail campaigns[1] later told the study interviewer that he now uses direct mail less often because the majority of contracts come in repeat business from regular contractors and in new accounts referred by satisfied customers. The article referred to stresses certain procedures:

1. Mailings are selective to specified industries that offer the best prospects for workshop services. Addresses are generally obtained from industrial directories.
2. Letters are always addressed to individuals rather than titles.
3. Mailings are timed to precede the industry's busy season.
4. Letters are short and to the point.
5. Letters solicit contracts, not charity.

Workshop directors reported varying success in direct mail efforts. For example, one workshop cited a mailing of 2,000 letters that did not bring a single response. Others recalled favorable responses that produced contracts when followed up at a later date.

As used by the workshops, direct mail was not confined to the traditional letter of solicitation but included mimeographed or printed flyers sent out monthly to selected industries. Usually these were attention-getting devices of professional quality and were mailed to coincide with industry's peak seasons. Some of the flyers contained cartoons and stressed services to industry in only one or two paragraphs. Frequently the preparation of the direct mail campaign was under the auspices of a board member or a public relations person employed in a board member's organization.

In one instance a direct mail solicitation for the workshop used the letterhead of an industrial firm. It was hoped that the prospect who received a first class letter from a large well-known industrial firm would read it even if the opening paragraph began: "In the near future a representative of the ______________________ workshop will be calling on you to see if you have any subcontract work they might undertake . . ." Where interested board members and volunteers were willing to provide letterheads, creative time, and the influence of their signatures, access to purchasing executives was reported to be easier. A similar technique sometimes used was to have board members who were leading industrialists sign regular letters of solicitation sent on workshop letterhead. The prestige of their signatures was felt to be effective in the total sales effort.

Other traditional direct devices or techniques seen included enclosures of blotters, colored stickers to be placed on the outer cover of telephone books, bookmarks, matchbooks, and other advertising specialties. The use of letter gadgets, devices that are fastened to the letter to attract attention, was noted in two workshops. A swatch of material was pasted to a letter addressed to firms that might need swatching services and the letter opened with a catchy statement about next season's line. Another gadget was a Pliofilm envelope stapled to the letter containing a nut and a nail. The opening line of the letter in capitals read: "From nuts to nails — what are your packaging requirements?"

Sample letters of solicitation were obtained from the workshops participating in the study and their contents analyzed. The points stressed in direct mail letters were similar to the statements made by procurement men in their sales presentations (See Chapter IV). Most often letters of solicitation contained the following elements:

1. Services offered were specifically listed, *i.e.*, packaging, collating.
2. The benefits to the contractor were stated.
3. Quality, production schedules, and competitive prices were mentioned.
4. Satisfied customers for whom work had been done were listed.
5. An opportunity to call and explain the services was requested. Frequently a return post card to indicate contractor interest was enclosed.
6. A brief statement on the workshop's purposes, organization, and employees was frequently included.
7. A brochure describing the workshop and its services was sometimes enclosed with the letter.

Only one letter was more than one page in length. For the most part, letters were short and direct and were designed to hold the reader's attention. An introductory build-up about rehabilitation services was seldom used, although a brief mention of rehabilitation and workshop objectives frequently appeared in the body or near the end of the letter.

It is one of the peculiarities of direct mail promotion that everyone believes that his letter is the best. Also, each person believes that he can improve upon a suggested letter. Consequently, the following examples of letters successfully used by sheltered workshops are not given because they are believed to be the ultimate or outstanding suggestions; they are given with the understanding that each workshop planning to use a direct mail approach will draw upon them only for ideas in the preparation of letters suitable for its individual purposes.

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[1] Dubrow, Max, Work Procurement and Job Production. *American Journal of Mental Deficiency*. Sept., 1958. p. 356.

Examples of General Sales Letters

Dear Mr. ________________:

Our workshop, which is approximately_______square feet with_______disabled workers, performs industrial subcontracting such as mechanical assembly work, packaging, and jobs requiring excessive handwork.

We function in the same way as industry does with production control, cost accounting, and inventory control procedures. Our goal is for the workers to achieve occupational independence through learning to become good employees for industry.

_________Corp.,_________Co.,_________Corp., and other major industries in the area have approved us for subcontract work. We will not accept your work if we cannot meet your specifications.

If you return the enclosed self-addressed post card to us, a workshop representative will be happy to explain our services in greater detail and submit a bid on any work you wish done. Our prices are competitive and the quality of our work meets industrial standards.

Sincerely yours,

* * * * *

Dear Mr.________________:

Much of today's creative advertising requires preassembly and packaging.

The_________workshop handles many special problems: mobiles, small displays, swatching sales books, collating, pasting, mailings. Work is done on schedule, to your specifications and at competitive rates.

The_________workshop provides sheltered work for _________disabled persons. Call (telephone number) or return the enclosed card so our representative may call on you.

Sincerely yours,

* * * * *

Dear Mr.________________:

Enclosed is a brochure introducing, in brief, a program designed primarily for handicapped persons to achieve a degree of occupational independence. Our workshop of_______square feet and having a capacity of_______ workers is designed to suit your needs.

We subcontract work from numerous industries in ____________on a competitive basis. It has been our pleasure to serve a number of businesses similar to yours in gathering, collating, and simple binding of advertising materials, pamphlets, and displays. We also pick up and deliver to suit the contractor's needs.

If there is doubt as to your company submitting a bid to a customer because of excessive or even minimal handwork, give us a call and our estimator will look the work over and submit a bid to you. We will not accept your work if we cannot meet your specifications. It is your decision to accept or reject the bid.

We look forward to hearing from you in the near future.

Yours truly,

Examples of Single Flyers for Direct Mail Solicitation

Example 1

Drawing of a Mother Kangaroo with pouch full of baby kangaroos struggling to get inside	MRS. KANGAROO HAS A PACKAGING PROBLEM A Shortage of Space and FAST GROWING PRODUCTION

Industry encounters these same problems at certain times. To assist you in your packaging needs, we offer the facilities of our spacious shop and_________trained and experienced workers.

Quality workmanship . . . high production . . . large and small orders . . . competitive prices . . . over_______ years of experience . . all add up to customer satisfaction!

We also specialize in parts assembly and light machine operations .

Mrs. Kangaroo will have to solve her own problem, but it's quite possible our subcontract service could be of considerable assistance and value to you.

We Invite Your Inquiry
(Name and Address of Workshop)
(Telephone Number)

* * * * *

Example 2

BREAKING IN

Drawing of a cowboy breaking in a pony

It's time for "breaking in" on new business!

Being a "job shop" we are constantly on the search for new industries that may use our services.

What do we have to offer *YOU* on subcontract assembly, packaging, or light machine work?

- _________square feet of shop space — a large pool of skilled workers
- Guarantee of quality workmanship and production
- Rigid inspection and testing standards to insure customer satisfaction

CHAPTER VIII

LABOR UNIONS AND CONTRACTING TO WORKSHOPS

Comments made by workshop personnel and contractors about labor unions are summarized in this chapter; representatives of unions were not interviewed. Such aspects of workshop-union relations as fund raising, broad community relations, or union representation of workshop labor were not explored. The discussion is confined to union attitudes encountered by workshops in seeking contract work.

Even though 21 of the 35 workshops had encountered some form of union opposition to contracting of work, it was generally felt to be a relatively minor problem. In 19 of the 21 workshops, staff members engaged in selling services stated that some contractors had indicated that they could not subcontract because of an agreement with their unions. Eight men attempted to overcome the objection (See section on Sales Presentation in Chapter IV); 11 felt there was no answer to it.

Reported union attitudes would appear primarily dictated by desire to maintain employment for members. It was stated that these attitudes became more rigid when employment declined. In several workshops, staff members stated that union opposition was directly related to the economic climate of the community; it increased as unemployment increased. Unions were reported to be concerned not only about the loss of jobs but also about union jurisdiction and the possibility that contracting would be used to evade or nullify the terms of union-management agreements.

Adverse union attitudes apply to all contracting out and not merely to contracting to workshops, but, in a few cases, there were reports of union criticism of workshops on grounds of price-cutting practices that in effect created unfair competition to their unionized employers and of underpayment and exploitation of workshop labor.

The following are typical of some of the problems involving unions mentioned by workshop personnel:

- A contractor who had awarded a new contract to the workshop withdrew it after the union threatened to strike his brewery if he changed vendors. The union said that the workshop provided unfair competition to the unionized plant of the original vendor. In this case the contractor had wished to change his source of supply because of poor quality work.
- The union requested a contractor to remove a contract from a workshop because union men were out of work and could perform the job being sent out. The workshop had been doing this job for more than a year.
- A contractor withdrew a job from a workshop because the electrical unions refused to install the finished equipment on the ground that it was not made by union labor. According to workshop staff, the minor crimping operation in the total assembly that was being performed was one electricians normally did not do or want to do.
- A shop steward threatened a shutdown because he noticed the foreman removing parts from the shop and the union had not been notified or given an explanation.
- A newspaper carried a publicity story about a workshop putting on additional workers because of a new contract from a large utility. The same newspaper also carried a story about reductions in work force at this public utility. The union threatened to strike.
- A union publicly criticized a workshop for paying its severely disabled workers less than a living wage. The union insisted that the workshop increase its wage scale without taking into account worker productivity.
- A union that permitted contracting had set up "distance rules" that stated that subcontractors had to be outside a certain radius of the company. This rule acted as a wedge to keep work in the original plant since prohibitive transportation costs were involved. The workshop in question was in need of contracts from nearby firms.

Most problems arising from unions' actions to prevent loss of work for their members confront profit-making firms seeking contracts. If a workshop, however, becomes involved in such a dispute, some sort of settlement is required. Of the workshop directors who had encountered such problems or who had stated how such a problem would be handled, the majority held that the problem of resolving the issue was the responsibility of the contractor and the union and not the workshop. A recent article dealing with industrial relations points out that the problem of the right to subcontract is between the company and the union involved.[1] The author states that a company has a right to subcontract, but, if the letting out of jobs has an impact on regular employees, many arbitrators will require the company to show compelling reasons for its decision to subcontract.

In some cases workshops may be in a better position than competing profit-making companies to overcome subcontracting problems and even to develop union support. The recommended procedure is for workshops to improve relations with unions by keeping them informed of workshop objectives, procedures, and work performed. Good workshop-union relations were reported in areas where communications between both parties had been formally established by specified procedures to meet problem situations. Problems were most often resolved by conferences between workshop and union representatives. When an explanation of the workshop program did not suffice, a tour of the workshop sometimes led to understanding. On occasion, workshop records were made available to the union to demonstrate that wage payments were based on productivity and that bids to contractors were based on going community labor rates plus overhead and not merely the actual hourly rate paid to handicapped workers.

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[1] Joseph, Myron L., Protect Your Freedom To Subcontract. *Harvard Business Review*. Jan. - Feb., 1963.

Among the other techniques reported were the appointment of a labor representative to the workshop board, periodic meetings with Union Council officials and executives of individual unions, and invitations to labor union representatives to receive guided tours of the workshop. One workshop sponsored a half-day conference of union officials who were required by their union executives to attend. The conference included films, lectures, discussions, and a tour of the shop. The workshop director said that this conference brought admissions from union personnel that they had never understood the principles under which the workshop operated and were glad they attended the conference.

Written union-management agreements generally do not mention subcontracting. A study made in 1959,[2] analyzing 1,687 major collective bargaining agreements concerning 1,000 or more workers each, revealed that 378, or less than one out of four, contained limitations on subcontracting. Of these 378 agreements, only four prohibited the practice outright. In the 1,309 agreements without subcontracting limitations, four agreements specifically included subcontracting of work among management's unrestricted prerogatives.

The content of subcontracting clauses varied considerably. By and large, the clauses established certain limitations on subcontracting but did not preclude its use in certain circumstances.

The largest number of limitations to subcontracting were designed to minimize adverse effects upon employment. A number of agreements barred subcontracting if employees who could do the work were on layoff or working part time. Most forbade contracting out if it would result in subsequent layoffs or part-time work.

Numerous agreements allowed the union to participate in the making of subcontracting decisions. Only one agreement banned subcontracting without approval and one called for notice after a contract had already been let. The largest number required simply that the union be notified or consulted.

Several agreements established limitations based upon production and cost considerations. Some prohibited subcontracting except during peak periods or emergencies, while the remainder were concerned with the lack of room for additional help, the inability to meet an established delivery date, and maintaining good customer and public relations. Additional provisions allowed subcontracting where it represented savings in cost or time or improved the efficiency of the operations.

The following is an example appearing in a utility agreement:

> It is recognized that the company has the right to have work done by outside contractors. However, work performed by employees covered by the agreement will not be contracted out if this will result in the layoff of employees who normally perform such work.

Observations

The following observations can be made about workshop-union experiences on contracting:

1. There is no universal union attitude toward contracting of work to workshops. Workshop-union co-operation on this and other matters varies from community to community and is dependent somewhat on the efforts expended by the workshop in explaining its services to the union.
2. Union objections to subcontracting to sheltered workshops or to profit-making firms varies according to economic conditions: primarily the supply of work available to the union's members. In situations of full employment, workshops probably have few problems of unions standing in the way of contract procurement.
3. Many reported instances of union opposition can be attributed to failure to keep the union informed. Generally, where union representatives were consulted or informed about problem situations, difficulties were avoided or negotiated amicably.
4. Although 21 of 35 workshops had encountered some instances of opposition to contracting from unions, they were generally considered to be of minor importance in the contract procurement process. When unions were cited as creating problems, the problems were frequently overcome by discussion and explanation.

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[2] *Subcontracting Clauses in Major Collective Bargaining Agreements.* U.S. Department of Labor, Bureau of Labor Statistics. Bul. No. 1304, Aug., 1961.

CHAPTER IX

THE PRICING PROCESS

In this chapter the theoretical aspects of the pricing process and specific step-by-step procedures for pricing a job will be discussed in terms of the following:

- The Concept of Overhead
- The Extraordinary Costs of Workshops
- Pricing Methods Used by Workshops
- Suggested Pricing Procedures
- The Use of Industrial Engineering Assistance
- Record-Keeping Suggestions
- Some Considerations of the Wage and Hour Law

THE CONCEPT OF OVERHEAD

By Donald W. Ullman, Comptroller,
National Society for Crippled Children
and Adults

Overhead is a term employed in cost accounting to describe all expenses of operation other than the cost of materials and direct labor. Overhead is further refined by classifying or grouping charges attributable to specific functions. Thus, expenses relating to the production function are grouped together to arrive at "production overhead"; expenses relating to the sales function are grouped and described as "selling expense"; and expenses relating to administrative and general functions are grouped and described as "general and administrative expense".

For sheltered workshops there is still another category of expenses that should be segregated and accounted for separately. These are the expenses attributable to the service function of the workshop. For example, the salaries of social workers, psychologists, and related expenses are not properly attributable to production overhead, selling expense, or general and administrative expense but are the expenses the community is willing to support through special fund raising campaigns.

Expenses charged to an overhead account and then prorated back to the cost of the end product are real and necessary costs of doing business. For example, the expense imposed upon the employer for social security taxes is just as real as the expense of paying wages to the employee. Similarly, the expense to the employer for supervision, space, machinery, and utilities is necessary to the production of the end product. For these expenses to be recovered, it is necessary that they be considered in the price of the product or service.

While segregation of cost information is needed for both cost recording and cost control, it is also necessary to reclassify cost on a departmental basis so that there may be cost control at all levels of responsibility and authority. This requires a proration or allocation of the costs involved. This allocation is necessary because many costs are joint costs, that is, they are incurred for the benefit of more than one department. For example, the salary paid to the executive director should be allocated to those costs centers that reflect the activity of the executive. If 50 percent of his time is devoted to administration, 50 percent of the salary expense of the executive should be allocated to administrative expense; if 25 percent of his time is devoted to rehabilitation service and 25 percent to supervision of direct labor employees, then the remaining salary expense would be divided equally between rehabilitation and supervision. The gross salary of the executive director would, therefore, be allocated in the following manner:

Administration	50%
Rehabilitation Service	25%
Production Overhead (Supervision)	25%
Total	100%

The accounting structure of a workshop should be designed to reflect: *1)* materials used in production; *2)* direct labor; *3)* production overhead; *4)* selling expenses; *5)* service program expenses; and *6)* general and administrative expenses. In the broad sense of the term, items 3 to 6 inclusive are overhead, but each represents a specific type of classification of overhead.

Application of Production Overhead

In any given accounting period, production cost can be determined by adding the total material cost, total direct labor, and total production overhead, the sum equaling production costs.

It is necessary, however, from a management and pricing standpoint, to determine the cost of specific products or production runs between periods when financial statements are prepared. To accomplish this, detailed cost records must be maintained on material and direct labor costs. With these basic records available, it is possible to arrive at production costs of a specific job by adding a factor representing production overhead on a basis of the ratio between total direct labor and total production overhead. To illustrate, assume the following financial statement for the month ended June 30:

Materials		$ 500.00
Direct Labor		2,000.00
Production Overhead:		
Indirect Labor	$500.00	

Rent	200.00	
Payroll Taxes	100.00	
Light, Heat, Power	300.00	
Insurance	100.00	
Depreciation	200.00	
Telephone	200.00	
Supplies	200.00	
Total Production Overhead		1,800.00
Total Production Cost		$4,300.00

In this example, production overhead or burden equals 90 percent of the expenditure for direct labor. The calculation is made as follows: Total production overhead divided by total direct labor: $\frac{1800}{2000} = 90\%$

The ratio of overhead to direct labor is, therefore, considered to be 90 percent. In calculating cost of an individual run or product, an amount equal to 90 percent of the direct labor should be considered as production overhead.

The allocation of production cost in this fashion is known as a direct labor dollar method. It is an uncomplicated, commonly used method of allocation. Under appropriate conditions, direct labor hours, machine hours, or some other common denominator might be used for allocation purposes. Specifically relating to sheltered workshops, however, it is most appropriate to allocate overhead on the basis of direct labor dollars.

The ratio of production overhead to direct labor is calculated from the statement of operations. Once the overhead factor is established, it should be used consistently and not changed from month to month based upon the previous month's experience. Changing the overhead factor from month to month will result in inconsistent and fluctuating practices in pricing new orders. This is not meant to imply that overhead remains static and the ratio of overhead to direct labor never changes. There should be sufficient experience, however, to make sure that the change does not reflect a temporary or transient situation.

To illustrate some of the principles discussed, a portion of a statement of income and expenses of a hypothetical workshop is shown below. In this workshop handicapped workers of a high level of productivity are employed and the workshop's production capacity is approximately equal to that of competitive industry. The problem of the unproductive workshop employing primarily workers of low capacity will be discussed separately. The notations on the right of this sample statement indicate the classification of the various expenses.

XYZ WORKSHOP
STATEMENT OF EXPENSES — FISCAL YEAR

				Materials Used in Production	Direct Labor	Production Overhead	Selling Expense	Service Program	General and Admin.	
MATERIAL										
Plywood and Plastic (part of finished product)			$ 1,000	$1,000						
CLIENT WAGES										
(50 People at an Average Wage of $1,000 per Year)			50,000		$50,000					
EXPENSES										
Salaries:										
Executive Director	$10,500					$ 2,625		$ 2,625	$ 5,250	(1)
Shop Superintendent	8,000					8,000				
Foremen (3)	15,000					12,500		2,500		(2)
Vocational Counselor	6,500							6,500		
Salesman (part-time)	2,500						$2,500			
Bookkeeper	4,800					1,200			3,600	(3)
Secretary	3,600								3,600	
Maintenance Man	2,400					2,160			240	(4)
Total Salaries		$ 53,300								
Supplies		700				700				
Depreciation on Equipment		4,500				4,500				
Rent		3,500				2,600		450	450	(5)
Transportation for Handicapped		2,000						2,000		
Total			64,000							
Total Expenses			$115,000	$1,000	$50,000	$34,285	$2,500	$14,075	$13,140	

(1) Executive Director spends 50% of time in administration, 25% in service program and 25% in supervision of direct labor.
(2) 1 foreman spends ½ of his time as an Occupational Therapy Consultant.
(3) Bookkeeper spends ¼ time handling production records.
(4) Maintenance man spends 90% of his time in maintenance of shop area.
(5) Rent is divided on an area basis — 80% production, 10% service service program, 10% administration.

SUMMARY

Direct Labor	$50,000	100.00%
Production Overhead	34,285	68.58%
Selling Expense	2,500	5.00%
General and Administrative Expense	13,140	26.28%

In the XYZ Workshop example, production overhead is 68.58 percent of direct labor. Total overhead (exclusive of service program) is 99.86 percent of direct labor. While selling and general and administrative expenses are usually calculated as a percentage to production cost, we have referred to expenses accumulated in all cost centers as a percentage to direct labor. Because prime cost (direct labor and direct material costs) is composed of little material in most of the workshops studied, variances because of material costs will be minimal. Direct labor expense, therefore, seems to be a good common denominator to use for application of all overhead expenses.

In the majority of workshops serving severely disabled persons with little potential for achieving industrial norms, the problem of allocating the proper amount of production overhead is less simple. If the average production of a workshop employing only aged persons, as an example, is only half that of competitive industry, it would take twice as much floor space, twice as many workers, and relatively more heat and light to produce at an industrial rate. In such instances it would be reasonable to allocate a certain percentage of factory expense to rehabilitation expense and consider these unusual or excessive costs as rehabilitation overhead. The exact amount of customary factory expense to be classified as rehabilitation expense is difficult to determine, but workshops that have good records and can substantiate the productive capacity of their workshop as being a certain percent of regular industrial rates can apply this same percentage to their figures on factory expense. For example, *if it is definitely known* that the workshop's average productive capacity is 50 percent of regular industry, the workshop may allocate 50 percent of certain factory overhead expenses such as rent, heat, light, and power and consider this to be rehabilitation overhead.

THE EXTRAORDINARY COSTS OF WORKSHOP SERVICES

From the foregoing discussion by Mr. Ullman it can be seen that the computation of overhead as performed by an accountant is not a difficult matter. Any workshop director with a little experience can determine his total overhead from an analysis of his profit and loss statement. In industry this overhead figure will be used in determining the price of the manufactured product and the ultimate consumer will pay for the direct labor, overhead, and profit margin of the manufacturer. In sheltered workshops that can be said to operate on a basis comparable to normal industry, total overhead should be paid by the consumer, who in this case is the contractor. The problem implied by the latter statement is a definition of the term *comparable to normal industry* and the determination of whether or not the workshop is in fact in all respects comparable.

There are many extraordinary costs in sheltered workshops creating a lack of comparability to regular industry. The term *extraordinary cost* is not used in a critical sense and in fact may even be complimentary, as the following discussion will illustrate. Extraordinary costs mean factors of overhead that would not be found in regular industry but are present in sheltered workshops because of their specialized structure, operations, and philosophy, making it impossible or undesirable to attempt to pass on total overhead to the contractor as part of the contract price. Because they exist, sheltered workshop pricing becomes complicated and demands serious deliberation.

Evaluation Services

Workshops that undertake to perform formal work evaluation and conscientiously follow a program of varied work assignments are operating in an inefficient manner from an industrial point of view. An industrial concern would rarely shift the worker from a job that he likes and that he is performing in an efficient manner to another assignment merely to find out how well he does at the new job. It would be unthinkable for this same employer to constantly shift a worker from job to job just when the worker acquires productive skills on an operation. The industrial employer takes into account the fact that the employee enjoys or finds security in the job he does well, particularly if his rate of compensation is related to his production. In an evaluation situation, the trainee is shifted to jobs that he may dislike intensely, causing a severe decrease in his over-all production. The shift of workers from job to job increases spoilage and produces a higher rejection rate with consequent increases in inspection costs and rework.

The decision of the workshop to undertake a program of evaluation as one of its objectives meant assumption of a known risk in its relationships with contractors by increasing the possibility that delivery schedules may be more difficult to meet, quality may be more difficult to control, and production costs may be higher. The extraordinary costs of a program of evaluation cannot be expected to be absorbed by the contractor. This is one of the unique services of a sheltered workshop that the community supports and must be paid for by sources other than the contractor.

Labor Turnover

Labor turnover is an everyday occurrence in industry and the cost of hiring and training new workers is an overhead factor that industrialists consider in the pricing of their products. However, the situation in a sheltered workshop is far from normal, since the objective here is to develop a worker to industrial levels and then place him in industry. It would be difficult to conceive of a commercial firm diligently pursuing a policy of getting rid of its best workers and deliberately increasing its personnel and production costs. A high placement rate in a sheltered workshop or a great concentration on placement efforts results in an extraordinary overhead cost. It is an inefficiency industry could not tolerate. The additional cost of an intensive placement service again cannot be passed on to the contractor except in a limited number of unusual cases.

Workshop Training Programs

The term *training* has been defined in many ways, and it can be said loosely that any work done by a sheltered workshop employee is a form of training. The concern here is only with the unusual and lengthy training situation. Industry also undertakes training programs for all its new employees and the cost is considered a part of normal overhead. In sheltered workshops, training the severely handicapped requires a period of time that would be considered excessive in industry and a cost or investment that would be prohibitive. There are also situations where workshops may deliberately perform a job in an inefficient manner in order to provide training or may use a more costly method of performing a job in order to provide the trainee with a new work experience. Training, then, is one of the rehabilitation functions of operating a workshop that may result in extraordinary costs that cannot be passed on to the contractor.

Poor Equipment

In modern competitive economy a manufacturer aware of the most efficient methods generally has an advantage over his competitors and thrives. As a rule, workshops have limited capital and are unable to purchase the type of machinery and equipment found in the industrial community and for that reason may be eliminated from the market on many jobs. In such cases, the shops continue to exist through the selection of types of contracts that seem to be particularly adapted to their operations. When workshops perform a contract for work also done elsewhere on modern equipment they are performing their work at a high relative cost, and an effort to pass this higher cost on to the contractor will generally be doomed to failure. Inefficiency resulting from a lack of good equipment is unfortunately frequently encountered in sheltered workshops.

There is also the problem of resistance or objection to the use of machinery. The pros and cons of machinery for workshops are discussed elsewhere in Chapter VI.

Therapeutic Method

It can be stated that all work performed in a sheltered workshop is therapeutic in nature. It is not uncommon for a specific type of method of work to be prescribed for the purpose of strengthening certain muscles or developing a weakened part of the body.

In cases of this type, it is important that the worker continue to perform his operation in the manner prescribed under the carefully laid-out instructions of the physician. If a better method of doing the work is developed to increase production or cut costs, then the entire purpose of the physician's prescription is defeated. An industrial engineer[1] describing his feelings on his first trip through a rehabilitation workshop states that he was dismayed at the obvious inefficiencies he observed and wanted to make immediate changes to more efficient methods. Only when he understood the basic purposes behind the prescriptions did he learn to hold himself in check and to keep constantly in mind that the rehabilitation needs of the worker take precedence over industrial production.

Under circumstances like these, a contractor cannot be expected to pay for the extraordinary cost of rehabilitation services.

Unproductive Labor

Probably the most important extraordinary cost relates to the type of client accepted by the workshop. There are many workshops throughout the country where the efficiency of the employee who had the job adapted or modified to his handicap is the equal of his counterpart in regular industry. The mentally alert handicapped worker with good hands is generally not industrially handicapped. This is especially true if there is no problem of motivation and a sincere desire to work exists. However, workshops that serve the aged, the emotionally disturbed, the mentally retarded, the cerebral palsied, and the group with severe hand disabilities will find that the cost of operating a workshop with industrially inefficient help cannot be absorbed by the contractor. With such workers the space costs, the costs of extra supervision, added inspection costs, and other overhead factors will be so great that the operating deficit of the workshop can be met only through community subsidy. It has been stated many times that all workshops could operate at a profit by accepting only the most productive of the handicapped. Sheltered workshops that accept the severely industrially disabled as their responsibility have additional problems in pricing beyond those encountered by workshops that can produce at a more nearly normal industrial rate.

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[1] Crouse, Paton B., Industrial Engineering in the Rehabilitation Workshop, in *Institute on Work Evaluation, November 30, 1959 Through December 11, 1959*, sponsored by May T. Morrison Center for Rehabilitation and San Francisco State College. The Center, San Francisco.

PRICING METHODS USED BY WORKSHOPS

The different methods or procedures used to set prices for the 243 contracts studied can be classified generally as follows:

1. The price was determined by computing the cost of direct labor and adding certain percentage factors to the labor costs to cover overhead and margin. One hundred and forty contracts were priced by this procedure.
2. The contractor determined the price he would pay and the workshop accepted this price. Fifty-five contracts were priced in this manner.
3. The contract price was the price of direct labor only. No additional factors for overhead were added. Thirteen contracts were priced in this manner.
4. Information was collected on competitive prices charged and the contracts were priced in line with these competitive prices. Seven contracts were priced by this method.
5. Published trade or industry price lists and catalogs were consulted to set contract prices. Six contracts were priced on this basis.

Information on the method of pricing used was unavailable for the 22 remaining contracts generally because the price had been set prior to employment of current staff.

Frequently, a combination of the above procedures was used to arrive at a price. For example, the price may have been computed by taking direct labor and adding proper overhead factors, and this calculated price subsequently checked against competitive prices in the community and published trade price lists. In such cases, the principal method of price determination was direct labor plus overhead, and for purposes of tabulation they were so counted.

Prices Set by Contractors

As will be discussed in more detail in Chapter XIII, What Contractors Say About Sheltered Workshops, contractors generally preferred specific bids in writing. Most of the time, questions such as "What will you pay?" were considered to be irresponsible and were frequently regarded as evidence that the workshop was deficient in industrial knowledge.

There were 55 contracts in which the price was set by the contractor. Contractor-determined prices occurred in three types of situations.

1. In some cases workshops that were unsure of ability to determine a proper price turned this responsibility over to the contractor.
2. Other instances of prices set by contractors occurred when contractors came in with specific and predetermined prices that they would pay for a certain job. Usually, these prices were submitted on a take-it-or-leave-it basis. Contractors' prices were accepted either because they were proper or because the shop badly needed the work regardless of price offered.
3. In similar situations contractors sometimes set prices based on standards in their own companies. Often the standards were quite generous and workshops accepted these prices because their own computations or previous experience with the contractor indicated that prices were fair and the workshops probably would not do as well financially if they had submitted their own bids.

It was the consensus of the workshop directors and the study staff that if an offered price of a contractor is to be accepted the workshop staff should verify it by making their own estimate of the cost of performing the job. If these computations indicate that the contractor's offered price is too low, there is then some basis for negotiation or appeal for a higher price. If the workshop is willing to accept the quoted price, it does so with the knowledge that the decision is based on realistic information. Records of the cost of performing each contract should then be maintained to determine whether the contractor's offered price was advantageous.

Prices Set by Trade Price Lists

Published price lists in a limited number of industries serve as guidelines for the pricing of well-defined and standardized operations. One such list in the lettershop field is the *Franklin Catalog*, published by the Porte Publishing Company, P.O. Box 143, Salt Lake City 6, Utah. This organization issues three separate publications: The *Franklin Offset Catalog*, the *Franklin Printing Catalog*, and the *Franklin Lettershop Catalog*. The *Franklin Lettershop Catalog*, probably of greatest interest to sheltered workshops, was found in use in a number of those participating in the study. It gives complete prices for all lettershop duplicating and mail advertising service work and can be leased at a cost of $8.00 for the first year and $5.50 for each renewal year.

The prices suggested in the *Franklin Catalog* are the averages of those charged in all parts of the United States. Most users accept them as standard in the field. However, since they do represent averages there are instances where they are either higher or lower than prices prevailing in a community. Even in such instances, the *Franklin Catalog* is used as a guide to the proper figure. The Porte Company itself likes to consider the catalog as a gauge against which a company may check the reliability of its cost system. If prices are either considerably higher or lower than those in the catalog, a closer examination of cost structure is indicated.

If a published trade directory is to be used, steps should be taken to determine how realistic the prices given are in terms of competitive rates within the community. This is relatively easy to check and can be done on a sampling basis. Even if the published rates appear to be in line with community prices, the cost of the job should be calculated in order to see how close the workshop comes to meeting the published prices.

Prices Set on Basis of Competitive Prices

There is considerable danger in accepting competitive prices as the sole criterion for the charges that the workshop should make. The collection of data on competitive prices is a useful device and often a necessary expedient. Its principal value is in checking workshop prices, however, and it is no substitute for a computed price based on actual workshop costs.

Prices Based on Direct Labor Only

Pricing to cover only direct labor costs occurred in 13 contracts. Either the workshop's own labor rate was used, or that of the contractor was adopted.

In eight contracts involving three workshops, the workshop labor rate, in each case the legal minimum, was used to set the contract price. Four contracts allowed for a slight additional charge to cover the cost of handling, but the basic charge was for labor only. It was interesting to note that none of the workshops using this pricing procedure had cost records to evaluate profit or loss for their operation. If an analysis could have been made for each of the contracts the results probably would have indicated a substantial loss. Since the contractor was being charged for only labor, this method of pricing is considered unrealistic for workshop use and is open to severe criticism.

Five contracts were priced using the contractor's labor rate. In each case the rate was in excess of $1.75 per hour. Workshop directors who stated that the contract price was set by using the contractor's direct labor rate without adding any overhead reasoned as follows:

> Since the contractor's labor rate is so much higher than the rate paid to employees of the workshop, the contract price based on the contractor's higher labor rate without overhead would in many instances equal the charge that would be made using the shops' labor rate plus an added factor of overhead.

The above reasoning generally does not take into account the Federal Wage and Hour regulations that state that handicapped clients are to be paid at a rate based on the going community rate for similar types of work. A case probably could be made for pricing based on contractor's labor rate without overhead if it could be proved that the contractor's higher labor rate was not proper for the type of work in question and that elsewhere in the community the same type of work was being performed at the same labor rate used by the workshop in its computation. It is conceivable that in such a situation a price based on an exceptionally high contractor's labor rate without the additional factor of overhead would be approximately equal to the going labor rate in the community for this same type of work, plus a reasonable overhead factor. Even if this were true, it would seem to be an unusual method of price computation. The majority of workshop directors who were interviewed, as well as the study consultant in accounting, stated that it is far better for workshops to go through the regular steps in computing a price based on direct labor plus overhead and thus assure themselves of better and more accurate estimates.

Prices Computed on Basis of Direct Labor Plus Overhead

The majority of contracts studied were priced by computing the cost of direct labor (wages paid for work directly applied to the product) and adding a certain percentage factor to cover production overhead and margin. This method is the most realistic in terms of arriving at a price that is fair both to the workshop and the contractor.

Because this pricing method is considered by most workshop directors and the study staff to be the best procedure for workshops to follow, it will be discussed in detail in the following section.

SUGGESTED PRICING PROCEDURES

For ease of illustration in outlining a series of steps to be followed in setting a price on a job, it is assumed that the contract involved is one where materials are furnished and the workshop has no material purchasing costs.

Step I. — Understanding the Job

Before beginning a pricing operation, the workshop must know the contractor's specifications and production requirements. Aspects of the job that are not understood should be clarified. In all but the simplest of jobs, specifications should be in writing. If possible, samples of the items to be worked on should be obtained and in case of complex machine or electronic work it may be advisable to obtain blueprints or sketches from the contractor.

Step II. — Determining Whether You Are Able To Do the Job

The decision as to whether or not a workshop can perform the job requested by the contractor is generally made by the director or other staff with over-all knowledge of the shop's resources and capacities. In determining whether the job can be done, the director considers time schedules, skill level requirements, equipment, and other resources. This subject is discussed in more detail in Chapter VI.

Step III. — Determining the Best Method of Doing the Work

Some industrial engineers have stated that there is always a better way of doing a job; ingenious and skillful persons can always improve upon existing methods. There are methods that are obviously inefficient that would be readily apparent to any experienced or skilled industrial foreman. If the direct labor costs for the job are computed on the basis of a poor method of work, the price submitted to the contractor will be grossly inaccurate. For this reason, the determining of the proper method of doing a job is extremely important.

If workshop personnel are uncertain whether the job is properly laid out and the method is correct, outside assistance from skilled industrial personnel, including the customer, should be sought. (See Section on the Use of Industrial Engineering Assistance later in this chapter.)

Step IV. — Determining Direct Labor Costs

Direct labor costs (wages paid for work directly related to the product) are determined by relating the time required to complete a specific number of units to the rate paid for the type of work involved. Costs are usually expressed in terms of 100 units or 1,000 units. The length of time required to perform each operation is generally determined by a time study. (See discussion of Time Study in Appendix.) The following steps are involved in determining direct labor costs.

As a result of time study, it has been determined that normal good performance of a nonhandicapped worker familiar with the job and working at a tempo that would be required in competitive employment would result in 50 units an hour. From the workshop director's knowledge of community industrial labor rates and from checking with the U.S. Employment Service, it has been determined that workers in industry doing the same type of work receive $1.50 an hour.

Thus, the direct labor costs would be $1.50 for 50 units, $3.00 for 100 units, or three cents a unit. It should be noted that, if workshop employees are paid hourly rates, these rates must be based on $1.50 an hour, adjusted to take productivity into account. In this case, the standard for a normal nonhandicapped worker is 50 pieces per hour. If workshop employee production is 25 pieces per hour, the hourly rate then should be 75 cents an hour. If employees are paid on a piecework basis, they must receive the same piecework rate as does the worker in industry, which in this example is three cents per unit.

Step V. — Evaluation of Proper Amount of Overhead To Add to Direct Labor

We can consider two general procedures in determining the amount of overhead to add to direct labor:

1. Adding to the direct labor cost the amount that represents a carefully worked out evaluation of the specific overhead relating to each job.
2. Adding to the direct labor cost a standard or uniform percentage that has been computed from the financial statement. This procedure is discussed in the Section on the Concept of Overhead, at the beginning of this chapter.

Specific Overhead on Each Job

In manufacturing operations where several different products are made, the industrial firm with refined accounting techniques will generally attempt to compute carefully the amount of overhead for each product, since it is known that this overhead will vary from item to item. Some manufacturing operations require more supervision, more set-up time, and more space and consequently should bear a greater proportion of the overhead. When possible, computation of varying overhead for the different jobs is recommended.

Standard or Uniform Overhead for All Jobs

Sheltered workshops, however, performing an infinite variety of jobs and not having the benefit of elaborate job cost systems, will usually find that they cannot compute with any degree of accuracy the specific overhead relating to each job. As a rule, they have found that, if they take the workshop's over-all overhead (production overhead plus general and administrative overhead) and apply it uniformly to all jobs, contract prices will average out. This method of using the flat percentage overhead, as determined by the financial statement, has the advantage of simplicity in application and is readily understandable to both customer and workshop staff.

Table 3 on page 48 shows the average amount of overhead added to direct labor to arrive at a contract price in workshops of various sizes. As noted in the discussion following Table 4, it is the opinion of the study investigators that the average amount of overhead charged in small workshops is too low. Any contract price based on direct labor plus approximately 50 percent, as is the case in many small workshops, could very well be set below actual production costs.

Step VI. — Adding the Special Costs

Set-up costs, special tools required, or any unusual costs directly attributed to the contract must be added to the contract price. If the job is a repetition of a contract previously performed and requires a new set-up, a charge for the set-up services should be made again.

Transportation costs must be figured into the contract price if this is a service of the workshop. Transportation costs may be quoted separately or figured into the total estimated price. The decision is generally made on an individual basis, taking into consideration contractor preferences and attitudes.

Other extra costs that are considered are for excessive amounts of handling, unusual supervision requirements, special equipment purchases, or jobs of extremely short duration. Any one of these situations may require the workshop to increase its estimated price for the contract.

Step VII. — Adding a Factor for Profit or Incidentals

It may seem incongruous to add a factor for profit in a nonprofit sheltered workshop, yet this is a safety feature that should be considered in the pricing of a contract job. If wages are fair, the job performed in an efficient manner, and the final price to the contractor fair, there is no reason why a few additional percentage points should not be included in the contract price to help cover other workshop costs. In any event, the inclusion of an added factor for profit or incidentals is one way of insuring that at least all legitimate costs are covered.

When all of the estimates discussed in steps 4 through 7 are added together, the resulting figure constitutes the price quoted to the contractor.

If the Price Is Too High

In certain cases, the workshop may find that the resulting price is far in excess of the market for that type of work. In that event it is important to determine first whether an error was made at any stage of the pricing process. Possible error could lie in the computation of the labor rate or perhaps in the method of doing the job. If the price has been computed properly and remains higher than what the market would bear, the difference may be due to hidden extraordinary costs of workshop operation. If this is the case, an adjustment has to be made to bring the price within the range of acceptable quotations, and the workshop will be required to make up the difference between its cost and the market price with community subsidy or income from other sources.

The question might be asked, "If my final price is merely adjusted to reach a computed market price, why should I go through the necessary computation of finding direct labor and actual overhead?" The answer is that a knowledge of cost is essential, so that the workshop can evaluate its true profit and loss picture resulting from doing business. Efforts to increase efficiency and improve business management begin with an understanding of actual costs. The experienced workshop bases its price structure on its own costs, rather than simply adapting to the market price.

A Pricing Example

Prices are generally quoted at so much per 100 or per 1,000 but the price per 100 should vary if the number of units to be produced is very large or very small. The following illustration sets down the various figures used in arriving at an estimate of contract in which quotations were requested for 100, 1,000, and 10,000 pieces.

Date__________

Job #__________

PRICE ESTIMATE

Description: Assemble & Package Puzzles

ITEM	PER 100 UNITS	PER 1,000 UNITS	PER 10,000 UNITS
LABOR Hours Per C 1.00 Rate $1.50 /Hr.	$ 1.50	$ 15.00	$150.00
MATERIALS	-0-	-0-	-0-
SET-UP (2 hrs. @ $6.00 hr.)	12.00	12.00	12.00
TOOLS & FIXTURES	26.00	52.00	78.00
SPOILAGE ______ %			
HANDLING ______ %			
PRODUCTION OVERHEAD 70%	1.05	10.50	105.00
GENERAL AND ADMINISTRATIVE OVERHEAD 20%	.30	3.00	30.00
TOTAL COST	$40.85	$ 92.50	$375.00
MARGIN 10%	4.09	9.25	37.50
TOTAL PRICE	44.94	101.75	412.50
PRICE PER C	$44.94	$10.18	$ 4.13

In this example the person preparing the estimate has certain information already available. The number of hours per 100 units has been determined by a time study and the prevailing labor rate has also been obtained. Figures for the production overhead and general and administrative overhead are derived from the workshop's statement of income and expense. The blank lines and unused spaces for spoilage and handling allow for the inclusion of additional charges if the estimator knows of unusual circumstances that will increase workshop costs.

The price in this illustration is $44.94 per 100 for quantities of 100; $10.18 per 100 in quantities of 1,000; and $4.13 per 100 in quantities of 10,000. The substantial differences in price per 100 for small and large quantities are not unusual where set-up and tooling costs are involved. If the workshop were to accept a contract with a production run of only 100 units and charge a price based on a production of 1,000 units, it would incur severe losses. There are occasions when a price based on a production run of 1,000 units may be quoted on a very small run in order to demonstrate workshop competence and in the hope of getting larger orders later on. If the workshop follows this procedure, it accepts the fact that there is a risk involved and the small run will be produced at a loss.

THE USE OF INDUSTRIAL ENGINEERING ASSISTANCE

The ability to do a job in an efficient manner and to price accurately is an art that increases with experience. When the sucessful workshop staff member, time after time, is able to analyze the job requirements quickly and arrive at a quotation that not only sells the job but also allows a margin of profit, it cannot be attributed to a magic touch or clairvoyance. The success of this skilled industrial expert is the product of years of experience and training. He has learned his methods over a long period of time and in his own way has developed shorthand techniques to perform the step-by-step procedure that the workshop director who has fewer years of shop practice has to follow.

It would be expected that a sheltered workshop using industrial work as its principal form of therapy would have experienced industrial personnel on its staff. This was not always the case. Generally, when a workshop had no skilled industrially trained staff member it was because it was believed that funds were insufficient to pay the salaries of competent people for both rehabilitation and industrial staffs.

Frequently to gain needed skills, however, workshops took advantage of industrial engineering assistance available through community sources, at times even when the workshop had trained industrial staff. The following sources of such assistance were mentioned by the participating workshops:

1) board members and industrial engineering staff of board members' firms;
2) colleges and universities with departments of industrial engineering;
3) volunteer members of industrial engineering societies; and
4) contractors' engineering staff and training departments.

One workshop that had developed a successful working relationship with the industrial engineering department of a local university said that students used the workshop as a laboratory and training center and came in to estimate and price jobs and improve methods. In this case students were supervised and the workshop received in addition the benefit of the professor's experience. As a plus to the immediate benefits, the workshop profited through the interest of professional persons who later on continued their association as active supporters and volunteers.

The director in this workshop was happy with the arrangement but added one note of caution. He stated that most students of industrial engineering were insufficiently oriented to the specialized needs of workshop clients and did not appreciate the differences between workshop environment and objectives and those in industry. For this reason, use of students for industrial engineering assistance would mean that some time would have to be spent on educational activities relating to the workshop's purposes and methods.

Another workshop director stated that he was fortunate to have a group of members of the local Industrial Engineering Society "adopt" the workshop as a project. These engineers met periodically in the workshop to discuss specific problems. Generally, the subject matter of the meetings included actual jobs in operation, pricing of new contracts, and improvement of existing methods. The engineer volunteers found these sessions to be a source of enjoyment and relaxation as well as a community contribution.

Several workshop directors cited instances of exceptional co-operation from contractors. Occasionally, engineering staff offered assistance on jobs from other than their own firms. During interviews, representatives of some of the largest firms mentioned that they were ready and willing to give specialized help to workshops but that often such assistance was not requested. A number of the very large industrial firms have training films and manuals that they give to their vendors and are only too happy to assist suppliers that need help in the areas of industrial engineering.

In one instance the belief was expressed that industrial engineering services of the contractor should never be used. The workshop director stated that he had no right to ask his customer for engineering services. If he did, it would be an indication of lack of skill and knowledge. Also, he felt that the workshop should not be content to copy the methods in use in the contractor's company. This director was willing to use other outside sources of help such as board members.

Numerous instances were encountered of excellent engineering and methods improvement performed by workshop personnel, sometimes by staff members with little industrial experience or training. As will be noted in more detail in Chapter XIII, such technical skill was greatly appreciated by contractors. Workshops with available resources for offering technical assistance and suggesting improved methods had a distinct advantage over those that did not have them either from staff members or from outside help.

RECORD-KEEPING SUGGESTIONS

A comprehensive analysis of the types of records and methods of record keeping required in a sheltered workshop is beyond the scope of this study. In this section, a limited number of records and forms will be discussed with emphasis on those used in recording direct labor and other costs as well as over-all contract profit and loss. Forms such as these would be useful for evaluating the adequacy of current pricing and would provide a valuable resource for estimating similar jobs in the future. Records relating to the individual workers' evaluation or progress are not included.

Dun and Bradstreet has reported that each year over 80 percent of the business failures in service trades stemmed from the owner's inability to avoid certain conditions that adequate records would have disclosed in time to take early corrective action. For sheltered workshops, too, proper record keeping is of prime importance and provides the administrative tools for executive action and decision.

Most of the time, workshops are engaged in completing several contracts simultaneously. Upon the completion of any order it is desirable to know the complete cost involved up to and including the delivery of the product. This total cost includes direct labor costs, material costs if any, factory overhead, and general administrative overhead. As the work is in process, information about the above items should be accumulated and recorded. Some of the forms used by workshops in maintaining job cost records are described in the following paragraphs.

Individual Daily Work Record

This record is maintained each day for each worker to indicate the number of hours worked on each job and the quantity produced. Usually the record has additional information on worker earnings that are computed and entered by a clerk. Either the entries on hours and production are made by the worker himself and verified by a supervisor or the supervisor may make the proper entries. This form is basic to the preparation of payroll information and the maintenance of job cost records for each contract. A typical Individual Daily Work Record Form is shown below.

DAILY WORK RECORD

NAME James Nelson CLOCK NO. 53 DATE January 16, 1962

Job Number	Operation	In	Out	Time	Quantity	Piece Work Rate	Earned	Average Hourly Rate
12	Nut & Bolt Assembly	10:00	11:15		420	.22/C		
	Floor Sweeping	11:15	12:00					$.75
10	Hand Stapling	1:00	2:20		850	.135/C		
46	Graphotype 3 Line Plates	2:30	4:30		160	1.47/C		
		TOTAL TIME			TOTAL EARNED:			

SUPERVISOR______________________________

In this illustration the supervisor verifies the hours worked and the quantity produced. Generally, the time and earnings are computed and entered by the bookkeeping staff.

Daily Production Record

The Daily Production Record is used primarily as an administrative tool by the workshop executive to check on progress of the work and discover possible areas of weakness. It is prepared from the data turned in on the Daily Work Record and is a summary of all jobs performed in the workshop during the previous day. The experienced workshop supervisor can use it to detect production lags on certain jobs. The form is a valuable aid to workshop directors and usually requires only a few hours of a clerk's time, provided there are not excessive numbers of small contracts. A typical Daily Production Form is shown below.

DAILY PRODUCTION SHEET

Date______________________________

JOB #	OPERATION	CONTRACT PRICE	NUMBER OF PIECES PRODUCED	GROSS INCOME	DIRECT LABOR COST	GROSS INCOME MINUS DIRECT LABOR
10	HEADER BOLT ASSEMBLY	$1.00/C	7,200	$ 72	$ 29	$ 43
18	COLLATION 10 SHEETS	28.20/M	39,500	1,114	691	423
46	INSERTING IN #10 ENVELOPE & FLAPS TUCKED	1.05/C	4,250	446	241	205

Contract Production Cost Record

The information needed to maintain a record of production loss of each contract also comes from the Individual Daily Work Record. Totals of each worker's daily performance are posted to the contract Production Cost Record. At designated periods, when an analysis of overall contract profit or loss is desired, the Contract Production Cost Record will supply the data on the production costs of each job. Total production costs become part of the analysis necessary to determine net contract profit or loss. The Contract Production Cost Record illustrated is one of many possible forms that can be modified to a workshop's particular needs.

INDIVIDUAL CONTRACT PRODUCTION COST RECORD

CONTRACTOR Jones & Co.

CONTRACT NUMBER #42

JOB DESCRIPTION Header Bolt Assembly

PURCHASE ORDER NO. AT-463

DATE	PRODUCTION DATA				COST DATA					
	Hours Worked	Number Employed	Units Produced		Wages	Materials	Special Expenses	Factory Overhead		Total Production Cost
1-7-63	80	10	16,000		$64	$15	$46			
1-8-63	75	10	15,000		$60	0				
1-9-63	60	8	12,000		$48	0				
1-10-63	72	12	15,800		$63	2				
1-11-63	75	10	15,200		$61	0		(80% of Labor)		
WEEKLY TOTAL	362		74,000		$296	$17	$46	$237		$596
1-14-63										
1-15-63										

Blank columns in the Contract Production Cost Record form are for additional data in case a workshop has need for other specialized information. The column headed "Special Expense" is for the recording of set-up charges, cost of fixtures, jigs or special tools, and any other expense that can be charged directly to the contract. "Factory Overhead" is a predetermined percentage that has been computed from the workshop Profit and Loss statement (see Section on "Overhead") and, since it remains constant, it need not be entered daily. In the example cited, factory overhead is 80 percent of direct labor and the entry shown is $237 or 80 percent of $296 (total direct labor for the week). The total production cost of this contract for the weekly period is $596.

Production cost of the contract is only part of the total cost and in order to determine accurately whether the job made or lost money, selling costs and general and administrative overhead have to be considered. Accountants generally set up the individual contract profit and loss analysis in this way:

Contract Number ________ Description ________
Period Covered ____________________

Gross Income	$ 740
Less Production Costs	596
Gross Profit	$ 144
Less Selling Expense and General and Administrative Overhead (30% of direct labor)	89
Net Income	$ 55

As in the case of factory overhead, selling expense and general administrative overhead (a combined figure) is previously computed from the workshop's Profit and Loss statement, usually covering a six-month period.

Individual Contract File

It is recommended that a complete record or history of each contract be maintained in an individual contract file. This file should contain copies of time studies made, computations used in estimating the contract price, correspondence, and all other records directly relating to the contract. All information about each contract is thus readily available in a single location, simplifying the workshop director's problems in accumulating information for special reports or for estimating and bidding on new contracts of a similar nature.

Several workshops utilized a comprehensive form to summarize all activities relating to a single contract, thus eliminating the need to examine a series of records and forms when a review of the contract was necessary. Such a form is a chronological record of the contract's progress until completion. The "Contracts Report" form shown below could, with necessary modifications to meet each workshop's specific needs, be used for an over-all record of each contract's history.

CONTRACTS REPORT

DATE ____________

COMPANY ____________ PERSONS CONTACTED TITLE
ADDRESS ____________ ____________
PHONE ____________ ____________
LEAD FROM ____________ ____________
CONTACTED BY ____________ ____________
DESCRIPTION OF CONTRACT NUMBER OF PIECES ________ TOTAL $ ________
REQUEST FOR BID DATE ____________ DATE BID PLACED ____________
BID PLACED WITH ________________________
TITLE
DATE BID ACCEPTED ____________ PURCHASE NUMBER ____________
BID REJECTED ____________ WHY?
ESTIMATED STARTING DATE ____________ ACTUAL STARTING DATE ____________
ESTIMATED COMPLETION DATE ____________ ACTUAL COMPLETION DATE ____________
ESTIMATED MAN HOURS TOTAL CONTRACT ____________ ACTUAL TOTAL MAN HOURS ____________
HOW CONTRACT WAS BID ____________ PER HOUR ________ PER PIECE ________
TIME STUDY STANDARDS ____________ UNITS PER HR. ________ UNITS PER MIN. ________
ACTUAL PRODUCTION ____________ PER HOUR ________ PER MINUTE ________
ESTIMATED NO. PERSONS REQ'D ____________ ACTUAL NO. PERSONS USED ____________
PERSONS USED JOB TITLE

INCOME FROM CONTRACT ____________ TOTAL EXPENSES FOR CONTRACT ____________
LABOR ____________ OVERHEAD ____________ MATERIALS ____________
PICKUP & DELIVERY ARRANGEMENT ____________

WORKSHOP EQUIPMENT USED ____________

COMPANY EQUIPMENT USED ____________
NEW EQUIPMENT REQUIRED ____________

TYPE OF TRAINING PROVIDED BY CONTRACT ____________

TRAINEE REQUIREMENTS ____________

WILL THIS CONTRACT BE REPEATED ____________ IF SO, HOW OFTEN ____________
IF CONTRACT IS CONTINUED, WHAT IS ESTIMATED LIFE OF CONTRACT? ____________

COMMENTS BY DEPARTMENT DIRECTOR

SIGNATURE ____________

SOME CONSIDERATIONS OF THE WAGE AND HOUR LAW

The Fair Labor Standards Act, commonly known as the Federal Wage and Hour Law, merits a more thorough discussion than can be given in this report. An excellent summary of the law as it relates to sheltered workshops has been prepared by the U.S. Department of Labor in a pamphlet set up in question and answer form. Entitled *Sheltered Workshops Under the Fair Labor Standards Act and the Walsh-Healey Public Contracts Act,* the pamphlet can be obtained from the Wage and Hour and Public Contracts Divisions of the U.S. Department of Labor. It is recommended that every sheltered workshop have this publication on file.

Any serious doubts about whether or not the workshop is interpreting or applying the Fair Labor Standards Act correctly should be the subject of an inquiry to the regional office of the Wage and Hour and Public Contracts Divisions, U.S. Department of Labor. Inquiries will be answered by mail, telephone, or personal interview at any of the regional offices. If there is doubt as to the location of regional offices, the local U.S. Employment Office will be able to supply addresses. It is assumed that all workshops are aware of the fact that no wages below the legal minimum may be paid to a handicapped employee unless a sheltered workshop certificate has first been obtained from the U.S. Department of Labor.

Sheltered workshops performing contract work are in most instances engaging in interstate commerce and therefore subject to the Wage and Hour Law. This is the case if the materials worked on enter the stream of interstate commerce either directly or indirectly. A workshop should not assume that it is exempt from the Wage and Hour Law unless it receives official assurance to this effect from an authorized representative of the U.S. Department of Labor.

No handicapped staff member may be paid less than the legal minimum wage without specific authorization even though the workshop has a sheltered workshop certificate. An application for such specific authorization must be filed for the individual worker under regulations Part 524 and it must be shown that the worker's handicap impairs his earning capacity for the work he is to perform.

In a few instances it was noticed that contracts were priced using only direct labor costs without inclusion of factors for overhead. Not only is this procedure inadvisable from the point of sound workshop administration or fiscal management, but it is in conflict with the intent of the law and regulations specifying that workshops may not accept subcontracts at unfair competitive prices, thereby undercutting commercial industries and other workshops.

Another misunderstanding of the law lies in the belief that the workshop can fulfill its obligation to a handicapped person by paying him the hourly rate set by the sheltered workshop certificates without considering the worker's productivity. Handicapped workers must be paid wage rates that are the equivalent of wage rates paid nonhandicapped workers in industry for essentially the same type and amount of work, but in no case less than the certificate rate.

CHAPTER X

THE BID

Bid, quotation, and price offered are synonymous terms. All refer to the price expressed in dollars per unit, for which the workshop offers to do a job. There are various ways in which requests to bid are received by the workshop. These may be:

1. A telephone call from the contractor in which a verbal description of the job is given and a quick reply is requested.
2. A letter in which the specifications of the job are outlined. These specifications may be detailed and complete or they may be sketchy, requiring additional information before they become clear.
3. A formal document called a request to bid, frequently accompanied by a blueprint. Sometimes a request to bid contains a form to be completed by the workshop and returned.
4. Submission of one unit of the work to be done. The shop is asked to quote, using this unit as a guide in setting the price.
5. A trial run of a quantity of the products to be made. The bid is based on the workshop's experience with the sample materials.

Workshops, in turn, submit their bids to the contractors in various ways. There may be:

1. A verbal quotation given over the telephone.
2. A verbal report followed up with a written statement. The verbal price is quoted because of the contractor's urgent need for the information. The written statement is sent to make certain that no misunderstandings occur and serves as a protection to both parties.
3. A quotation in writing, including a breakdown of the elements included in the price.

A written bid is always recommended and in fact preferred by contractors. Listed below are two examples of written bids submitted by workshops.

> The *ABC* Workshop is pleased to submit the following quotation:
>
> (Detailed description of job and prices by quantities)
>
> All materials and supplies necessary for the performance of the contracted work shall be furnished to us at no cost.
>
> The *ABC* Workshop does not accept responsibility for taking physical inventories as part of any contract, and, when physical inventories are necessary, they will be taken only by *ABC* Workshop personnel and on a strict time-cost basis. We cannot permit contractors' personnel to take any physical inventories.
>
> The contractor assumes responsibility for the maintenance of any loaned machinery or equipment that is an integral part of the operation of the contract. *ABC* Workshop, of course, maintains its own equipment.
>
> No contractor can be permitted to provide direct supervision for workshop employees working on a given contractor's project. All instructions as to how to do a job and how to improve quality, etc., must be given to *ABC* Workshop supervisors and group leaders.
>
> The contractors who provide steady work for *ABC* Workshop will be given production priority over new jobs at all times.
>
> Delivery schedules for contract work will be established as far in advance as possible, and *ABC* Workshop makes every possible effort to fill delivery schedules agreed upon. No pickup of finished goods can be made until three days after receipt of all materials necessary to perform contract work.
>
> Billing is made following each shipment and is due thirty days net.
>
> Storage of customer's inventory shall not exceed a thirty-day production requirement. Storage of finished products shall be subject to the following charges:
>
> $.________ per square foot for areas less than 2,000 square feet; and
>
> $.________ per square foot per month for areas over 2,000 square feet.
>
> *ABC* Workshop does not make pickups or deliveries of contract work. Raw materials shall be delivered f.o.b. our dock, prepaid. All prices for completed materials are f.o.b. our factory.
>
> It is understood that the above cost is subject to change after the original pilot production line setup. Any engineering or other changes shall be subject to cost renegotiation.
>
> Very truly yours,
>
> If the above quoted price and terms meet with your approval, please sign the duplicate of this letter and return to our office.
>
> Name of Company ____________________________
>
> By ______________________ Date ____________

The following is an example of a quotation submitted in the form of a letter, after a sample unit was supplied by the contractor.

Dear Mr. ______________;

The following is our quotation for the assembling, packaging and shipping of the ____________________ that you propose to manufacture:

Assembly and Packaging Operation:

1. From wood stock 36″ long, cut two (2) pieces, one 32″ and one $2\frac{7}{16}$″.
2. Drill four (4) holes in 32″ piece and two (2) holes in short piece in positions as per sample submitted with countersunk drill.
3. Attach short piece at right angle to long piece at one end with metal angle bracket. Secure with four (4) flat head bolts and hex nuts.
4. Cut metal channel piece to eighteen inch (18″) length and drill one (1) hole in each end of channel. Deburr both ends.
5. Attach metal channel to outer side of wood base exactly seven inches (7″) from each end. Insert one (1) ball bearing and secure channel piece with one (1) bolt and hex nut at each end.
6. Package assembled unit with one (1) instruction sheet in overlap, bookfold carton. Tape seal closed.

Quotation:

35.75¢ per unit
f. o. b. *XYZ* Workshop

Option Assembly:

If end clips are used to attach channel rod to wood base we would drill and tap holes in clips. This would eliminate two (2) hex nuts from the assembly.

No other changes in assembly.

The use of end clips will reduce assembly and packaging price to 34¢ per unit, f.o.b. *XYZ* Workshop.

Shipping

A charge of 11.5¢ per unit, plus postage, will be added for labeling, handling, and delivery to post office.

If we are to handle shipping, you will supply us with gummed addressed labels, sorted and separated by postal zone.

Conditions:

Assembly prices quoted include cutting metal channel pieces to length. If you supply these to us in 18″ lengths, reduce our quotation 3¢ per unit.

All component parts, including wood stock, metal channel, metal angle bracket, ball bearings, flat head bolts, hex nuts, end clips, instruction sheets and bookfold cartons, to be supplied by (the contractor) and delivered prepaid to our shop.

Production of 1,000 units would require approximately two (2) weeks after receipt of *all* materials.

We thank you for the opportunity to quote you on this operation and hope we may serve you. We assure you complete satisfaction on workmanship and production.

Truly yours,

Number of Bids

During a year the number of bids submitted by participating workshops ranged from as few as 10 to as many as 9,000. As would be expected, size of the workshop was the principal determining factor. In the 11 large workshops, the median* number of bids made annually was 500, the comparable figure for medium-sized workshops was 200, and for small workshops, 50.

In some workshops a small number of bids reflected particular circumstances. Inability to accept more work because of space limitation was cited as the reason in a limited number of cases. Some workshops also were fortunate in having large, long-term contracts and therefore had less need to pursue new work.

The number of bids submitted annually was greater where there was staff engaged in contract procurement work. In workshops employing such staff full time, the median was 350; in workshops employing part-time procurement men, the figure was 200; and in workshops without staff specifically designated as procurement men, it was 30.

Percent of Bids That Are Successful

The percentage of bids resulting in contracts was estimated by workshop directors to range from as little as 10 percent to as much as 98 percent. Estimates of the percentage of successful bids were as follows:

Less than 20% successful	5 workshops
20 to 39%	7
40 to 59%	7
60 to 79%	5
80% or more	9
Unknown	2

Large, medium, and small workshops reported close to equal amounts of successful bidding: 45 percent of the large estimated 60 percent or more successful bids; 33 percent of the medium-sized estimated 60 percent or more successful bids; and 50 percent of the small estimated 60 percent or more successful bids.

Workshops charging relatively low prices for each hour of service had no more success in bidding than those charging higher prices. Of the 15 workshops whose average hourly charge for service was less than $2.25, six, or 40 percent, reported 60 percent or more success in bidding. Of 20 workshops whose average hourly charge for service was $2.25 or higher, eight, or 40 percent, reported 60 percent or more success in bidding.

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*The median is a statistical average that divides the distribution in half. Half of the values are above the median and half are below. The median is used in preference to the arithmetic average when unusually large figures at either end of the range have a tendency to distort the average.

CHAPTER XI

ANALYSIS OF THE CONTRACTS STUDIED

This chapter analyzes 243 of the 13,843 contracts performed in the participating workshops during the period of one year. Contract was defined as a specific operation or job that was individually priced. Repeat orders on work previously done were not considered to be new or additional contracts.

The types of work performed and characteristics of the contracts are discussed in detail. Among the subjects covered are sources of contracts, types of jobs, average prices charged, annual dollar volume, continuity of work, disabilities of workers, transportation, material purchases, machinery required, storage required, and contractor liaison.

Number of Contracts and Contractors

The total number of contracts per workshop varied from 15 to 3,000 per year, distributed as follows with a median of 205:

Under 25 contracts	4 workshops
25 to 74	6
75 to 199	7
200 to 399	8
400 to 999	7
1,000 and more	3

Small workshops generally had fewer contracts annually than did those of large or medium size. Of the 10 workshops with under 75 contracts per year, eight were small. In contrast, of the 18 workshops with 200 or more contracts per year, nine were large, seven were medium, and two were small.

The largest number of contractors or customers served by any workshop during a year was 1,150 in a shop offering job printing. Two workshops did business with only 10 contractors during a year. The number of contractors served annually was distributed as follows with a median of 42:

Under 20 contractors	10 workshops
20 to 39	7
40 to 59	8
60 to 99	1
100 to 199	6
200 or more	3

No small workshop had more than 45 customers. Of the 11 large workshops, six served more than 100 contractors.

Number of Contracts per Contractor

There was considerable variation in the number of different contracts any individual contractor gave to a workshop. This varied from 92 jobs per contractor in a workshop doing a highly specialized type of work to one contract per contractor in two workshops. The median was 2.8 per year.

Sources of Contracts

In determining sources, the initial impetus for securing the contract was sought. For example, if a board member provided a lead and introduction to a company that was eventually sold by a solicitor, this contract was considered to be obtained through a board member and so recorded. Table 2 below incorporates the findings.

Table 2

Original Source of Contracts Studied

Source	Number	Percent
TOTAL	243	100
Workshop sales representative	94	39
Contractor called in on his own; no further information	47	19
Contractor's personal interest or identification with workshop	29	12
Board member influence	26	10
Radio, TV, newspapers	4	2
Direct mail letters	2	1
Miscellaneous	16	7
Unknown	25	10

The above analysis does not sufficiently reflect the importance of direct selling in the procurement of contracts. Contracts that first came to the attention of the workshop through board members, contractors' unsolicited phone calls, or advertising still required personal selling to close the deal. Also, there is no way of measuring the effect of the workshop's public relations program. Undoubtedly, many of the apparently unsolicited inquiries by businessmen were influenced by the workshop's reputation and continuous public relations program.

Types of Jobs Performed

Each job or contract performed was classified according to its primary characteristics and assigned to one of 10 categories. Because of some overlapping among the groups, a few jobs could be classified in more than one way. However, in every case the contract was classified according to the best judgment of the study staff and assigned to one category. The 10 groups of jobs are as follows:

1. *Industrial Salvage and Reconditioning:*
   These jobs involved the restoration of items to usable form and generally were of a relatively complex nature requiring considerable time to learn, although a small number could be considered simple. About 50 percent required the use of machinery. Most were performed in the large workshops. Examples: repair of soft-drink cases; repair of electric flat irons; separation of floored hardware such as nuts, screws, and bolts and packaging by classification; stripping and sorting jewelry returned from dealers; sharpening drills; garment-mending; salvage of copper wire by removal from electrical equipment; and repair and reconditioning of cloth and paper towel racks.

   There were 18 contracts of this type in 13 workshops.

2. *Electrical Assembly:*
   This type of work involved the fabrication or completion of electrical assemblies. Most of these jobs were complex and required the more productive worker. Some required the use of machinery. Examples: construction of wire harnesses, cable assembly, electronic board assembly, coil winding, and various types of soldering.

   There were 17 contracts of this type in eight workshops.

3. *Sewing:*
   This was work requiring power sewing equipment for the completion of various articles. All of these jobs required a skilled sewing machine operator. Examples: production of hospital shoes made of cloth, polishing mitts, hair bows, and industrial vacuum bags.

   There were seven contracts of this type in three workshops.

4. *General Machine Work:*
   These contracts included the fabrication, processing, or assembly of items using machinery as a major phase of completion. These jobs, although not as difficult as the above, required a substantial learning period. Types of machines used were: drill presses, crimping machines, punch presses, welders, air benders, automatic screw machines, bow winders, riveters, automatic tube cutters, grommeters, and other automatic assembly devices.

   Examples: assembly of outboard motor components using a two- and four-ton press; cutting copper tubing using a machine cutter; tapping holes in steel brass or punched parts; construction of bows with a star bow winder; and the milling of a brass bar to form a yoke.

   There were 33 jobs of this type in 20 workshops.

5. *Hand Assembly:*
   The majority of jobs seen fell into this category. These jobs consisted of the assembly of various items completely by hand. In some cases a fixture* was used to aid the assembly process. Generally, the jobs were very simple and required very little time to learn.

   Examples: placing of a washer and nut on a bolt; placing a cap on a plastic container; assembly of pole lamps; lacing of display cards; and the assembly of utility knives.

   There were 58 contracts of this type in 26 workshops.

6. *Painting:*
   These jobs required the painting of objects or posters, including the silk-screen process. Jobs under this classification varied from the gross painting of objects with a brush or spray gun to delicate hand painting requiring fine dexterity. The few contracts that involved the silk-screen process took considerable time to learn. Workshops doing silk-screening had staff capable of preparing a completed screen.

   Examples: painting bowling pins with a sprayer; preparing campaign posters using the silk-screen process; painting dots on fishing lure bodies; and painting switch parts with luminous paint.

   There were eight contracts in this group in six workshops.

7. *Hand and Machine Packaging:*
   These contracts included all types of packaging jobs, *i.e.*, placing of items in bags, cartons, or boxes. In addition to hand packaging, some contracts required the use of heat sealing devices, automatic packagers, and blister pack machines. All jobs were very simple, whether hand or machine. Generally, they were the simplest found in the shop and required only a very short time to learn.

   Examples: packaging of hardware, toys, games and candy, and display kits.

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*There is considerable confusion over the terms *jigs* and *fixtures* and, contrary to popular belief, these two items are not synonymous and the terms are not interchangeable. A jig is a device for supporting the work and for guiding cutting tools during machining. Fixtures support the work during machining but do not guide the cutting tool. Fixtures are also used for holding parts in correct position during testing or assembly. Thus, the special devices created to hold parts during an assembly operation are fixtures and not jigs.

There were 43 contracts of this type in 19 workshops.

8. *Swatching:*
   These contracts involved the preparation of display booklets of materials for advertising purposes. The workshop was required to cut the swatch to size, either by hand or with a swatch cutter, and then to place the swatch in a booklet. Generally, this type of contract was quite difficult to learn to do properly. Operation of a power swatch cutter required a productive employee.

   Examples: preparing upholstery swatch books; preparing swatch catalogs, and the preparation of a simple booklet with two Band-Aids inside.

   There were eight contracts of this type in five workshops.

9. *Hand and Machine Lettershop Operations:*
   These jobs were typical of a shop offering a lettershop service, including hand sorting, labeling, counting, gluing, and collating. There were also a few jobs requiring more skill, such as operation of an offset press, addressograph, machine collator, or other mail service devices. Except for the machine operations, most of these jobs were very simple in nature.

   There were 31 contracts in this group in 14 workshops.

10. *Miscellaneous:*
    Jobs that did not fall into any of the other nine categories included unloading freight cars, a few clerical jobs requiring analytical skill, inspection jobs, and certain hand operations such as filing and deburring.

    There were 20 contracts in this group in 15 workshops.

Average Prices Charged for Workshop Services

In order to achieve comparability among workshops serving persons with varying degrees of disability, all references to actual prices charged are expressed in terms of the price for one hour of service by a nonhandicapped productive worker. If a workshop's charge to a customer was $3.50 an hour, the contractor received the value of services of a nonhandicapped worker working on his product for one hour, even if the workshop was required to use three handicapped clients working one hour each to achieve normal production. The charge of $3.50 would, of course, include direct labor, production overhead, and margin.

In the 243 contracts studied, the prices charged by the participating workshops for each hour of nonhandicapped productive labor ranged from $1.20 to $9.00.

Charges varied according to the size of the workshop, as could be expected since the larger workshops performed work of higher skill levels. However, it should be noted that, even when large workshops performed work of a lower skill level, their prices were higher than those of smaller workshops, for the same type of work. Table 3 shows the average prices charged by small, medium, and large workshops; the average labor rates on which prices were based (not actual labor rates paid to handicapped workers); and average percent of overhead applied to direct labor to reach the contract price.

Table 3
Average Prices Charged to Contractors for Each Hour of Nonhandicapped Productive Labor

Size of Workshop	Average Labor Base Rate per Hour	Average Percent of Overhead Applied	Average Price Charged per Hour
Large Workshops	$1.32	127	$3.00
Medium Workshops	1.27	88	2.40
Small Workshops	1.17	47	1.72

These figures are averages of all the contracts grouped together. Of more significance are the prices charged for different types of jobs. Table 4 illustrates the average price per hour and range of prices for each type of contract.

Table 4
Average Prices Charged for Each Hour of Nonhandicapped Productive Labor by Type of Contract

Type of Work	Average Price Charged per Hour	Range of Prices Charged per Hour
Electrical Assembly	$3.73	$2.22-$9.00
Swatching	3.01	2.50- 3.60
Machine Work	2.76	1.20- 6.72
Silk Screening	2.65	2.50- 3.85
Sewing	2.60	2.50- 2.62
Industrial Salvage & Reconditioning	2.38	1.35- 3.00
Painting — General	1.80	1.20- 2.00
Packaging	1.76	1.20- 3.63
Hand Assembly	1.74	1.20- 3.00
Lettershop	NA*	NA

*Not available. Prices frequently set by Trade Guides and Price Lists.

As the above table indicates, average prices were higher for contracts of higher skills. The range of prices charged reveals that workshops on occasion do charge prices that are extremely low. Any price of less than $1.50 for an hour of nonhandicapped productive labor can be accepted as prima facie evidence that the prices are incorrectly set. It is the opinion of the investigators that any price of less than $2.00 an hour merits scrutiny to see if the workshop is using proper pricing techniques.

Dollar Volume

The range in annual dollar volume for the 243 contracts was wide. One contract yielded more than $262,000 annually. However, as shown in Table 5, half yielded less than $2,000. Fifteen hundred dollars was the median.

Although an effort was made to obtain data about the largest and most significant contracts in each workshop, about 17 percent of the 243 contracts studied were for less than $500 annually. The median contract income of all the 13,843 contracts performed by the participating workshops during a one-year period was $230.

Table 5
Annual Dollar Income from 243 Contracts

Annual Income	Number of Contracts	Percent of Contracts
TOTAL	243	100%
Under $500	41	17%
$500 to $999	31	13%
$1,000 to $1,999	50	20%
$2,000 to $2,999	24	10%
$3,000 to $4,999	19	8%
$5,000 to $9,999	30	12%
$10,000 to $49,999	21	9%
$50,000 and over	9	4%
Unknown	18	7%

The amount of annual contract income varied by type of contract. Table 6, arranged in order of median contract income, illustrates the variation.

Table 6
Annual Contract Income by Type of Work

Type of Contract	Number of Contracts	Median Income per Contract	Range of Annual Income per Contract
Industrial Salvage and Reconditioning	18	$6,623	$276-$262,437
General Machine Work	38	5,363	382- 14,273
Electrical Assembly	17	4,395	715- 52,011
Sewing	7	2,713	416- 24,199
Swatching	8	1,713	888- 7,035
Hand Assembly	58	1,540	173- 19,669
Packaging	43	1,281	193- 38,879
Painting	8	1,002	149- 12,854
Machine Lettershop	11	892	78- 15,976
Hand Lettershop	20	460	20- 9,789

One conclusion that can be made from Table 6 is that the best possibilities for contracts of high annual dollar income are in the areas of industrial salvage and reconditioning, general machine work, and electrical assembly. However, as can be observed in the wide ranges of income in each type of work, individual cases of large annual dollar volume contracts occur in all classifications of work.

Continuity of Contracts and Man Hours of Work

The continuity of a contract and the amount of employment it provides over a one-year period are matters of great importance to workshops. Certain types of jobs provide more continuous employment than others; they operate for more months during a year and provide more man hours of work. Table 7 illustrates the average number of man hours of work provided annually by different types of contracts.

Table 7
Hours of Work Provided Annually by Different Types of Contracts

Type of Contract	Number of Contracts	Man Hours of Work Annually For Each Contract	
		Median	Range — Low to High
Industrial Salvage and Reconditioning:			
(a) Salvage of machine rejects and reconditioning of worn machinery or parts	5	41,070	33,000-118,000
(b) Repair of service items and sorting floored hardware	13	1,287	900-3,000
Electrical Assembly	17	4,702	971-16,826
Machine Work	33	2,969	303-5,770
Sewing	7	1,411	649-2,640
Packaging	43	969	184-3,054
Swatching	8	887	374-1,298
Hand Assembly	58	819	60-5,944
Painting	8	442	110-1,268
Lettershop	31	NA*	NA
Miscellaneous	20	NA	NA

*Not available

Salvage of machined rejects and reconditioning of worn machinery and parts provided by far the largest number of man hours of employment during a year. However, it should be noted that there were only five contracts in this group and not many workshops were able or fortunate enough to obtain them. Another type of work that appeared to offer good prospects for providing many man hours of work was electrical assembly. Workshops desiring to build up annual man hours of work may find it advantageous to solicit in the areas mentioned. However, it should be noted that these jobs require trained industrial staff not found in most workshops.

Similarly, workshops wishing to obtain contracts providing both many man hours of work and employment during many months of the year will find their best possibilities in industrial salvage and reconditioning, electrical assembly, and general machine work. However, most workshops are not fortunate enough to be able to concentrate on these lucrative areas and have to adjust their procurement efforts to secure a variety of contracts including some of the above.

It is possible for a contract providing many hours of work to be seasonal in nature and provide employment only during a few months of the year. In situations like this, workshops are subject to wide fluctuations in the number of persons employed. Table 8 shows the average number of months during a year in which certain types of contracts were performed.

Table 8
Average Number of Months per Year in Which Contracts Were Performed

Type of Work	Number of Contracts	Average Number of Months
Industrial Salvage & Reconditioning	18	10.2
Electrical Assembly	17	9.6
Sewing	7	9.1
General Machine Work	33	8.4
Hand Assembly	58	8.1
Painting	8	7.1
Machine Lettershop	11	6.8
Packaging	43	6.2
Swatching	8	4.7
Hand Lettershop	20	4.4

On the average, all types of industrial salvage and reconditioning contracts ran 10.2 months out of every year; hand lettershop jobs on the average ran 4.4 months during a year and so forth. A workshop interested in obtaining contracts that supply continuous employment over a yearly period will find their best possibilities in the areas of industrial salvage and reconditioning, electrical assembly, sewing, general machine work, and hand assembly. Swatching and hand lettershop jobs usually will provide the least continuity.

Long-Time Customers

Since the 243 contracts studied were those selected by staff members as the largest and most significant jobs in the workshops, it would be expected that most had been performed for a long time. Table 9 shows the actual length of time involved. The interval indicated is that between the date the job was first performed in the workshop and the date the data was collected. Contracts frequently were not continuous on a 12-month basis and may have been performed for only a few months during each year.

Table 9
Length of Time Customers Served by Workshops

Length of Time	Number of Contracts	Percent of Contracts
TOTAL	243	100%
Less than 1 year	41	17
1 year under 3 years	107	44
3 years under 5 years	43	18
5 years and over	47	19
Unknown	5	2

Only 41 (17%) of the 243 contracts had been in the workshops for less than one year. Nineteen percent had been performed for five years or more. The record for longevity was 30 years. Two workshops in the same city had performed an industrial salvage job for one contractor for this length of time.

Large workshops reported contracts of five years' duration and longer more frequently than the medium and small workshops. They had 16 pereent more contracts that had been performed for three or more years than either the small or medium workshops.

Complexity of Contracts

The term *complexity*, as used in the study, refers to the length of time it takes a nonhandicapped individual to learn how to do the job. Workshop staff most familiar with the jobs in question supplied the estimates of the length of time it takes to understand how to perform each job.

Contracts were classified as simple, moderate, and complex:

Simple jobs were those that could be understood and learned in less than a week. One hundred and forty contracts, or 58 percent, were classified as simple.

Moderate jobs were those that could be understood and learned in one week to a month. Fifty-one contracts were classified as moderate.

Complex jobs were those that required one month or more to learn and understand. Fifty contracts were classified as complex.

Adequate data was not available on two contracts.

Complex jobs (those requiring one month or more to learn) were more frequently performed in the large- and medium-sized workshops. Of the 50 complex contracts analyzed, only six, or 12 percent, were found in small workshops. Simple contracts were performed in all workshops. Seventy-seven percent of contracts in small workshops were simple in type, as were 53 percent in medium-sized workshops and 44 percent in large workshops.

Generally, industrial salvage and reconditioning, sewing, and electrical assembly contracts were the most difficult types of jobs seen. Salvage jobs usually required about one month to learn with some taking more than three months. Electrical assembly contracts had no jobs that could be satisfactorily learned in less than a week and more than half required one month or more to learn. For sewing contracts it was necessary for the client to be an efficient sewing machine operator, with the skill being acquired in one to six months.

General machine work, lettershop operations requiring machinery, painting and silk-screening, and swatching contracts were the next most difficult types of jobs. Generally they required one week to one month to learn. Some of the painting jobs were quite simple, calling for only gross ability, but about half demanded good dexterity. One job could be learned only after six months or more.

Hand assembly, packaging, and hand lettershop operations were the simplest types of jobs seen with a learning time generally under one week.

Seven of the 35 workshops were judged by the study staff to be regularly engaged in the performance of complex contracts. This did not mean that all the work they performed was complex, but they had the competence to engage in difficult jobs and regularly sought such work. These seven workshops had certain characteristics in common:

- They employed skilled industrially trained staff.
- They had more specialized equipment and machinery than the other workshops.
- They employed very few or no mentally retarded workers.
- Generally, they had more productive workers. These workers might be severely disabled but were nevertheless well-motivated, good producers.
- They more frequently offered specific job training programs.
- They charged a relatively high price for each hour of workshop service.

Several directors of workshops employing severely disabled and less productive workers stated that they could not seek work of high skill level, because, if they accepted work and ruined it, the word would get around and jeopardize the solicitation of future contract work. On the other hand, some of these same directors also stated that contracts involving moderate skill levels that paid well and continued for a long period of time were the most desirable in terms of providing workers with the opportunity to learn. They also felt that jobs of a higher degree of complexity than those usually received were needed in order to permit them to charge a higher rate. These directors believed earning should be determined by the worker's maximum ability rather than by the limitations inherent in the kind of contract jobs a workshop might secure and favored upgrading the skill level of the workshop by seeking contracts other than those of the most routine and repetitive nature, even though jobs of a highly complex nature might be ruled out.

Disabilities and Types of Contracts

It has been demonstrated repeatedly that, with proper adaptations and the exercise of ingenuity, very few jobs cannot be modified so that practically all groups of handicapped can work on them. When workshop personnel were asked to indicate which types of disabilities could not be used on certain contracts, their replies were based on the current situation in their workshop. Special modifications of the job or the work situation requiring adaptive devices were probably not considered when staff members answered that a person with a certain type of disability could not be used on a job. Statements by workshop personnel relating to the types of disabilities that prohibited employment of individuals on certain jobs should be accepted, therefore, only as guides to the types of handicaps that generally make it difficult to assign a person to certain types of work.

For each of the 10 types of contracts, there were frequent responses that persons with orthopedic hand problems or limited finger dexterity could not work on the jobs. This was most noticeable on the contracts requiring machinery. In more than half of the machine contracts, persons with hand disabilities were said to be incapable of doing this type of work.

Blindness was a frequently mentioned limiting disability. This was occasionally considered to be a disqualifying handicap for all jobs except hand assembly and hand lettershop work.

Orthopedic leg conditions were considered to be disqualifying in certain machine operation contracts where the worker had to stand. Epilepsy was mentioned as a disability that prohibited a person's doing certain machine operations where injury was possible in case of seizures.

Workshop personnel considered the most disabling condition to be orthopedic hand conditions. A worker with "good hands" and normal intelligence could be assigned to nearly all of the 243 contract jobs.

Transportation of Contract Work

Of the 243 contracts studied, 138 (57%) involved complete transportation by the contractor, who made all arrangements for pickup and delivery of the raw materials and finished products. In 64 cases (26%) the workshop provided all transportation services. In the balance (17%) both the contractor and workshop provided the services. Usually the contractor arranged for the delivery of the raw materials, and the workshop furnished the transportation of the finished product.

Although most of the transportation was handled by the contractors, only eight workshops did not offer this service. As noted previously, 22 workshops owned trucks or delivery vehicles, and five used staff automobiles.

Size of the workshop was not a factor in whether it assumed the transportation of contract work. Roughly equal percentages of contracts performed in the small, medium, and large workshops were transported by the vendors. Nor did the type of contract performed appear to bear any relationship to transportation services. They represented individual arrangements between the contractor and the workshop and related to such matters as convenience and emergency needs.

It was noted in a few of the contracts studied that no transportation charge was figured into the price of the contract, and the contractor thereby received a free service that had to be made up by the workshop with other income. The workshop providing transportation should be aware of the danger of neglecting transportation costs when computing customer charges. (See also Chapter VI.)

Purchase of Materials

Only 25 of the 243 contracts examined involved the purchase of materials by the workshop. However, 19 of the 35 workshops had on occasion engaged in material purchasing to various degrees. The amounts of money invested or advanced for that purpose ranged from $300 to as much as $79,000.

Of the 19 workshops purchasing material, six were large, nine medium, and four small. The six large workshops showed an average contract income of $150,000 plus a material purchase outlay of from $10,000 to $79,000. Four of these purchased about $10,000 worth of material yearly. One had a material cost of $79,000 accounted for primarily by the purchase of cloth for its sewing shop. The other workshop had purchased $52,000 worth of material used mainly for the fabrication of household items.

The nine medium-sized workshops purchasing material had, on the average, contract income for the year of approximately $75,000. The purchase of material ranged from $4,000 to $48,000. Eight of these workshops purchased less than $11,000 worth of material in the year. One had material outlay of $48,000 primarily for materials for its upholstery and sewing shop.

The four small workshops, with an average income of about $25,000, showed material purchases of from $300 to $3,000. No predominant type of material purchase was made in any of these shops.

For the most part materials were purchased for contracts requiring the higher skill levels, in the areas of electrical assembly, power sewing, industrial salvage, and machine lettershop work. It is noted that all of the seven workshops rated as performing complex work purchased materials. None of the general machine or hand assembly jobs required the shop to purchase material. These jobs called for the workshop to complete subassemblies, the parts being provided by the contractor.

Several good-sized contracts were won by workshops because of their willingness to undertake material purchases and fabricate or assemble a complete unit or component. Most often in such cases, the contractor did not consider himself to be knowledgeable in the production of the item needed and relied upon the workshop to supply a completed unit.

As a rule, workshops that purchased materials added a percentage factor of markup to the cost of the materials when computing the price of the contract, usually between 5 and 10 percent. If workshops purchase materials and do not mark them up, they are actually accepting a loss on the transaction. The detail and time involved in material purchasing is an expense that should be paid by the contractor.

Contractors sometimes insist that workshops purchase materials, even when the workshop is reluctant to tie up money or has inadequate funds for this purpose. Several methods of handling this situation were described. One workshop determines quantities needed and specifications, and places the order with the suppliers, using the contractor's purchase order or letterhead. Delivery is made to the workshop, and the contractor pays for the materials as received. Thus, the workshop has no capital outlay and can take advantage of the purchasing power and discount possibilities of the contractors. Another common procedure is to secure a cash advance for the purchase of materials.

Machinery

One hundred and forty (58%) of the 243 contracts involved the use of industrial machinery. These were more frequently performed in the large and medium-sized workshops. Seventy-one percent of the contracts studied in large workshops required use of machinery; 63 percent of the contracts studied in medium-sized workshops required use of machinery; and 39 percent of the contracts studied in small workshops required use of machinery.

It was also interesting to note that in 70 percent of the contracts involving the use of machinery the equipment used was the property of the workshop. In 26 percent of the contracts requiring machines, the machinery was owned by the contractor and loaned to the workshop. Industrial salvage contracts frequently required specialized machinery loaned by the contractors. In 4 percent of the machinery contracts, the workshops used both their equipment and contractor loaned machinery.

Storage

Storage requirements for the 243 contracts were analyzed both in terms of the number of square feet consumed by contractor materials and finished goods and as to the percent of total floor space of workshop area used for storage purposes.

Ninety-four (39%) of the contracts required only 10 square feet or less of workshop space for storage. Fifty-six percent of all contracts required less than 50 square feet of storage space. There were only 29 contracts requiring more than 500 square feet of storage space.

In terms of percent of workshop area, 158 contracts (65%) of those studied, occupied less than one percent of the total workshop area. Only 18 contracts required 10 percent or more of the total workshop area for storage purposes.

Only one of the 10 types of contracts, industrial salvage and reconditioning work, generally required large amounts of storage space. Industrial salvage contracts usually took more than 200 square feet of storage space and some jobs needed more than 500 square feet. All of the electrical assembly contracts required very little storage space, in each case less than 50 square feet. For the eight other types of contracts, storage requirements varied according to the individual job.

Flat prohibition on any continued storage for customers was the stated policy of three workshops. One of these would permit storage for special customers at a price. Another stated emphatically that no price could justify storage maintenance because it defeated the purpose of the workshop and used up space needed for employment and training.

Where storage charges were made, there was generally a time limit, and charges began after this time limit was reached. Usually, no charges were made for storage of materials or finished goods for 30 days. However, one workshop began its storage charges as soon as the work was completed.

Other storage policies related to the amount of space a contract could occupy. The rule in one instance was that no contract could occupy more than 20 percent of the total workshop area at any one time. In another, the customer was told the number of square feet he would be allowed to occupy and storage charges were made if he required more than the allotted amount. Some workshops worked with customers in developing delivery and pickup schedules. Close liaison was maintained to make sure that the contractors adhered to these schedules and kept working areas free for maximum flow of materials.

Only one workshop stated that free customer storage was provided as a matter of policy and used this feature in sales presentations.

Several directors commented critically on use of expensive, well-lighted, and heated areas for storage. It was pointed out that this procedure increases costs and that industrial firms practically never do it.

Specific storage charges were obtained from only a few workshops. However, these were very close in price and ranged from six to 10 cents per square foot per month. The most specific statement in this regard appeared in the bid form submitted by a large workshop as follows:

> Storage of customers' inventory shall not exceed a thirty-day production requirement.
>
> Storage of finished products shall not exceed thirty days. Any storage in excess of the above shall be subject to the following charges:
>
> $.10 per square foot per month for areas less than 2,000 square feet.
>
> $.07 per square foot per month for areas over 2,000 square feet.

An excessively high rate of $1.00 per square foot per month was quoted by one workshop in order to force the movement of materials out of the shop and to discourage requests for storage services.

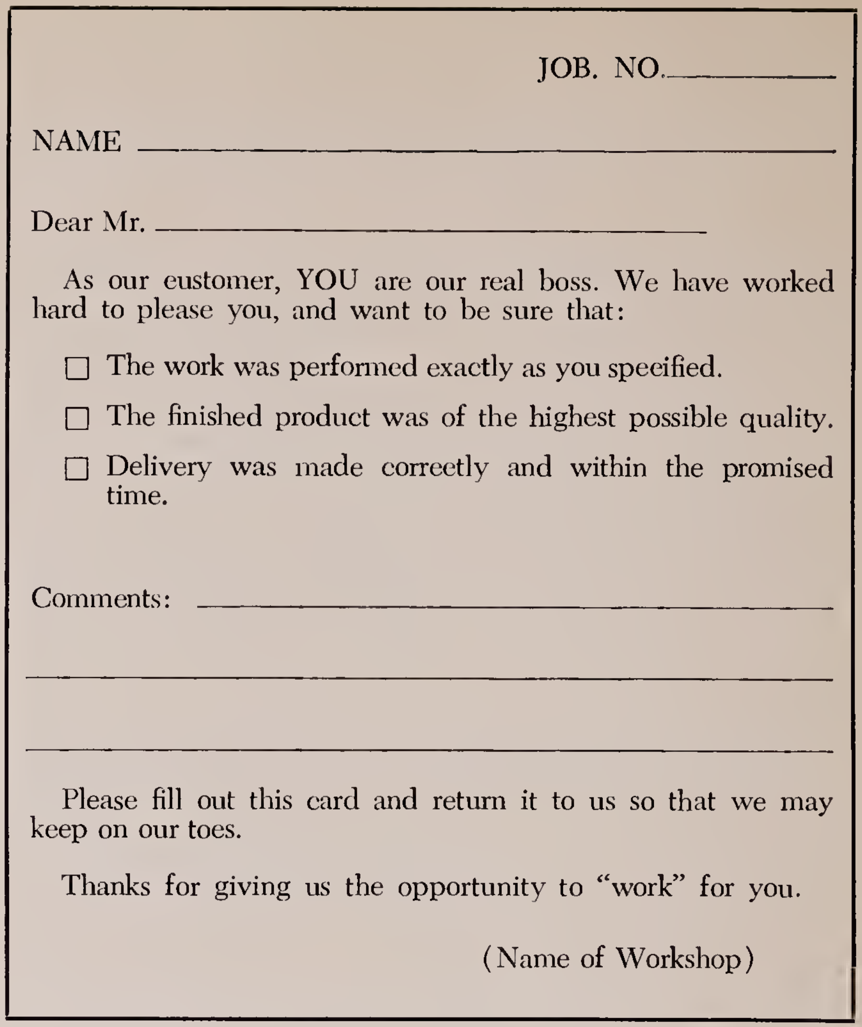
Liaison with Contractors

After contracts were in process workshop directors generally had responsibility for liaison with buyers. Foremen or supervisors also had liaison responsibilities in about 17 percent of the contracts examined. About 3 percent of the contracts indicated that procurement men maintained liaison with contractors after jobs were in production.

Very few contracts required a great deal of liaison time on the part of workshop staff. Eighty-eight percent required less than six hours of such time per month and only 14 required more than 12 hours. Most of the latter were electrical assembly and hand assembly jobs. This situation may be partially accounted for by the fact that many of the contracts examined had been performed for a considerable period. Liaison time would be expected to be greater on new and unfamiliar jobs.

Although contractors do not wish to be bothered with trivial matters, some stated that they would like to see more follow-up on jobs in process to make sure everything was going well. One contractor stated, "If you have problems, don't keep them to yourself and later on run into larger problems." Another contractor praised a workshop for "really hounding us" to keep loaned tools and fixtures in good condition. To this contractor close follow-up indicated interest in maintaining production and quality.

Reproduced here is a self-addressed, stamped postcard used by one workshop to follow up all completed contracts. This is an excellent device that with individual modifications could be used by other workshops.



JOB. NO.__________

NAME ____________________________________

Dear Mr. ____________________________

As our customer, YOU are our real boss. We have worked hard to please you, and want to be sure that:

- ☐ The work was performed exactly as you specified.
- ☐ The finished product was of the highest possible quality.
- ☐ Delivery was made correctly and within the promised time.

Comments: ____________________________________

____

____

Please fill out this card and return it to us so that we may keep on our toes.

Thanks for giving us the opportunity to "work" for you.

(Name of Workshop)

CHAPTER XII

SELECTED FINANCIAL ASPECTS OF CONTRACTING

In this discussion of certain economic considerations of contracting in sheltered workshops the following areas will be covered:

- Meeting Production Expenses from Contract Income
- Individual Contract Profit and Loss
- Annual Average Wages Paid
- Seasonal Fluctuations in Contract Income
- Contract Income and Wages
- Dependence on Largest Contractors
- Acceptance of Underpriced Contracts

Meeting Production Expenses from Contract Income

To what extent were the workshops in the study able to meet total production costs from contractor income or to realize contract income in excess of production costs? Production costs, as previously noted, refer to total expenses minus costs that have been designated as rehabilitation expenses.

Total contract income was divided by total production expense; the resulting figure was then expressed as a percentage of production expense. Thus, if income was greater than expense, the figure would be larger than 100 percent. Where production expenses were greater than contract income, the resulting percentage would be less than 100 percent.

Contract income ranged from 144 percent of production expense in a workshop operating on two shifts and charging relatively high prices to as low as 26 percent of production expense in a workshop with severely disabled and unproductive workers. There were also marked differences in the relationship between contract income and production expense in large and small workshops. The following table shows this income and expense ratio in the small, medium, and large workshops.

Table 10

Contract Income and Production Expense

Contract Income as a Percent of Production Expense	Total	Size of Workshop		
		Small	Medium	Large
TOTAL	35	12	12	11
115% or More	3	—	1	2
105% to 114%	2	—	—	2
100% to 104%	3	—	—	3
90% to 99%	6	1	1	4
70% to 89%	4	1	3	—
50% to 69%	10	6	4	—
30% to 49%	3	2	1	—
Under 30%	1	1	—	—
*NA	3	1	2	—

*Not available.

Table 10 provides some very interesting information. In only eight of the 35 workshops did total contract income exceed total production expenses, and seven of these were large workshops. One was of medium size. Nine of the 11 small workshops had contract income amounting to less than 70 percent of production cost. Because small workshops in this study generally had a much greater spread between contract income and production costs, they had to depend to a greater extent than did large workshops on sources other than contract income to meet budgetary needs.

A number of reasons can be cited to account for the fact that small workshops generally have a more difficult time in meeting their financial requirements through contract income:

1. As noted previously, there is a tendency to charge lower prices, even for comparable types of work. With lower prices resulting in lower income and with fairly high fixed overhead costs, it would be expected that a deficit would frequently occur.
2. In at least four instances, the small workshops in the study served severely disabled and low productive employees and would not be expected to meet their production costs from contract income. However, it should also be noted that at least one large workshop that also employed severely disabled, low productive workers exclusively had contract income that was 90 percent of production cost. This workshop, however, charged a relatively high price for each hour of normal productive labor.
3. A certain minimum amount of contract income is necessary to cover basic fixed overhead. Employment of a skilled workshop director, one assistant, and one clerical worker will practically consume total contract income in a workshop that receives less than $20,000 from this source. Based on study data, it is the opinion of the study staff that workshops with less than $35,000 of annual contract income can expect financial problems and will most certainly require financing from sources other than contractors to break even.

Individual Contract Profit and Loss

Production costs (the gross costs minus all rehabilitation costs) were computed for the 139 contracts on which data was complete and were compared to contract income. A contract in which production costs were significantly less than income could be considered profitable in an economic sense. Where production costs were greater than contract income, contracts were financially unprofitable.

To measure the profit margin or financial return for each contract, the ratio of production cost to contract income was used. All costs that would normally be found in an industrial establishment offering no rehabilitation services were included. An effort was made to identify all expenses that could be considered to be rehabilitation expense and to deduct them. The resulting figure was considered as the total production cost. Rehabilitation expenses that were deducted included costs of transporting disabled workers to the workshop if borne by the workshop; salaries of rehabilitation personnel such as social workers, psychologists, and counselors whose primary responsibilities were other than supervising production; and other incidental expenses not encountered in industrial employment.

Where production costs were less than 75 percent of contract income, the contract was classified as very profitable.

Where production costs were between 75 percent and 99.9 percent of contract income, the contract was classified as profitable.

Where production costs were between 100.1 percent and 124 percent of contract income, the contract was classified as unprofitable.

Where production costs were 125 percent or more of contract income, the contract was classified as very unprofitable.

The following table compares 139 financially profitable and unprofitable contracts (ratio of production costs to contract income) with the size of the workshop.

Table 11
Financial Success of 139 Contracts

Profit or Loss	Total	Size of Workshop		
		Small	Medium	Large
Total	139	40	45	54
Very Profitable	31	4	4	23
Profitable	40	2	18	20
Unprofitable	26	4	14	8
Very Unprofitable	42	30	9	3

As can be seen from the above table, the large workshops had considerably more contracts in the very profitable and profitable classifications than did the small workshops. Conversely, the small workshops had a notably larger number of contracts in the very unprofitable classification.

In the opinion of the study staff, the principal reason the large workshops have a larger number of profitable contracts lies in their greater skill in pricing and in ability to get higher prices from contractors.

Annual Average Wages Paid

Since wage administration in sheltered workshops was not a subject of major emphasis in the study, pertinent data was limited. Data on hours worked was insufficient to permit inclusion of information on average hourly wages.

Average annual earnings of employees in each workshop was computed from the data in workshop audits and personnel records. These figures serve as good indicators of what employees are likely to earn during a one-year period. Average annual wages ranged from under $250 a year in two workshops serving the retarded to $3,416 in a highly industrialized workshop where no employee received less than the statutory minimum wage per hour.

The average annual wage paid in 11 large workshops was $2,012. In 12 medium-sized workshops it was $1,456, and in 12 small workshops it was $638. Table 12 provides further details on annual earnings.

Table 12
Average Annual Wages to Workshop Employees

Total Wages per Year	Total	Size of Workshop		
		Small	Medium	Large
Total	35	12	12	11
Under $500	4	4	—	—
$500 to $999	13	7	4	2
$1,000 to $1,499	3	1	1	1
$1,500 to $1,999	6	—	4	2
$2,000 to $2,499	6	—	2	4
$2,500 to $2,999	—	—	—	—
$3,000 and Over	2	—	—	2
Unknown	1	—	1	—

The table shows that none of the 12 small workshops paid employees on the average as much as $1,500 a year, while eight of the 11 large workshops paid $1,500 a year or more. If a client had a choice of workshops and was interested in the highest remuneration, his best possibility would obviously be a large one.

Basically, the reasons workers in large workshops earn more money are:

1. Large workshops more frequently perform jobs of higher skill levels, and wage rates on these jobs are higher.
2. Large workshops charge higher prices even on jobs comparable to those performed in the small workshops. With higher income from contract work, more money is available for worker wages.

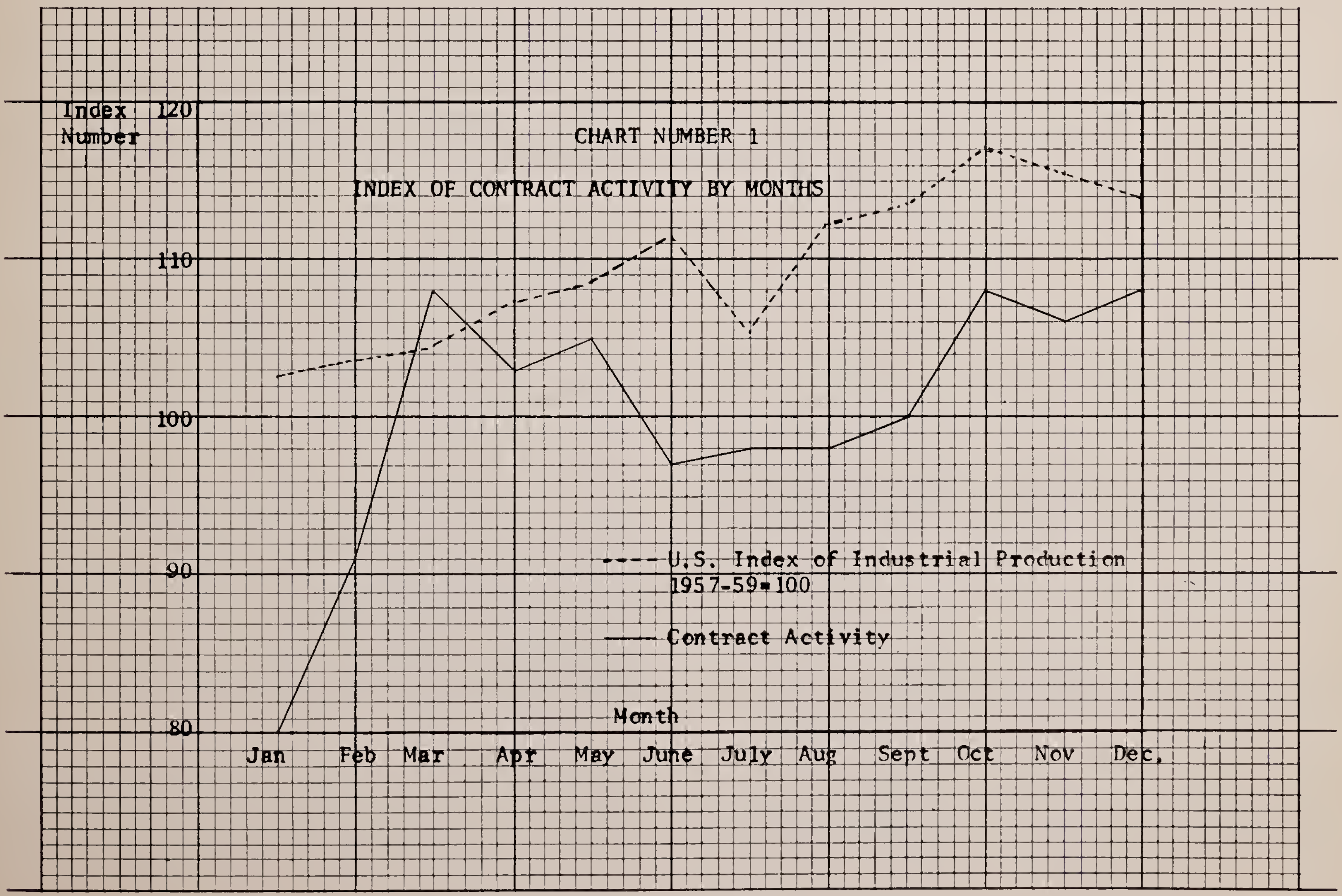
Seasonal Fluctuations in Contract Income

The seasonality of contract work and the difficulty of maintaining a uniform flow of contracts throughout the year were common complaints of workshop directors. To analyze the ebb and flow of contract activity, figures on wages paid on contract work were used, inasmuch as they more nearly reflected the exact periods when contract work was performed. Also, because of the lag between billing for services and the dates of work performed in some workshops, these figures were preferable to monthly dollar volume of contract work. The accompanying chart, in which average monthly contract wages over a two-year period were converted into index numbers, illustrates the variation in contract activity from month to month. The U.S. Index of Industrial Production is included to illustrate the similarity between the seasonal trends of national production and workshop contract activity.

The graph points up January as on the average the slowest month during the year. Many contracts terminate at the end of December and there is a general business letdown after the Christmas period. Big contract activity is noted in the spring and the fall of the year. The trend line follows somewhat that of U.S. Industrial Production, which shows January, February, March, and July as low months.

Workshops have attempted to adjust seasonal fluctuations in contract work by:

1. Leveling the flow of incoming work by joint planning with contractors. This procedure is often possible where the workshop is the sole resource of the contractor. There are mutual benefits in regularly scheduled and uniform production quotas over the entire period of a year instead of unusually heavy seasonal demands during selected months. Where the contractor is performing the same work in his own plant as that which is contracted out, it is not always possible to negotiate a planned or leveled-out schedule, because the contractor may use a particular job for his own employees during his work shortage period.
2. Seeking new and different contracts that typically experience peak demands during the workshop's slow periods.
3. Developing an item for manufacture that can be worked on when contract work is slow.



Contract Income and Wages

An important index used by administrators in fiscal analysis and control is the ratio of wages paid to clients on contract work to total contract income. This ratio varied considerably among workshops, with a low of 39 percent in a large workshop performing a specialized type of work. Here, client earnings were high, relatively speaking, as were prices charged to contractors for each hour of normal productive service. Highest ratios were 102 percent, 101 percent, and 100 percent in three workshops.

In a number of cases, specific workshop policies could be cited as the cause of unusually high ratio of wages to contract income. In rare cases when there were no layoff policies and workers were kept on the payrolls even when work was not available, a high ratio generally prevailed. There were also a number of instances where severely disabled, low productive workers were paid more than they actually earned. A third factor that would tend toward a high ratio was low pricing for services.

Table 13 shows the ratio of client wages to contract income in the participating workshops.

Table 13

Client Wages as a Percent of Contract Income

Wages as Percent of Income	Number of Workshops
TOTAL	35
100% or more	3
80 to 99%	7
60 to 79%	10
40 to 59%	13
Under 40%	1
Unknown	1

The over-all average ratio of contract wages to contract income was 64 percent; and its variation among workshops of different sizes was interesting: In the small workshops the figure was 80 percent; in medium-sized shops the figure was 73 percent; in large workshops the figure was 58 percent. Factors previously noted as causing high wage ratios were more prevalent in the smaller workshops.

Dependence on Largest Contractor

There was general agreement among workshop directors that a few large sustaining contracts were desirable. Such jobs were needed to cover the bulk of expenses. After these were assured, small contracts could serve as fillers. One director called the large ones "bread and butter" and the multiple small ones "gravy." However, concern was expressed about the dangers in relying too heavily on a limited number of contracts.

Some workshops depended on a single customer for a considerable portion of total contract income; others did not. For example, in one case 87 percent of total annual contract income came from one customer. In another, only 10 percent came from a single source.

The following table indicates the percent of total contract volume in each workshop accounted for by the single largest contractor and the three largest contractors.

Table 14

Percent of Workshop's Total Annual Contract Income from Single Largest and Three Largest Contractors

Percent of Total Income	From Largest Contractor	From 3 Largest Contractors
TOTAL	35	35
Under 15%	2	—
15 to 29%	14	4
30 to 44%	9	6
45 to 59%	2	10
60 to 74%	4	5
75 to 90%	3	6
90% and over	—	3
Unknown	1	1

As the above table indicates, dependence on a single contractor for as much as 60 percent of total contract income occurred in only seven workshops. Fourteen workshops received 60 percent or more of total contract income from their three largest customers.

Dependence on a limited number of customers can often be traced to specific events in a workshop's development. Sometimes, a satisfactory relationship with one company continued to grow into more and more volume until the workshop had less and less need to seek new customers. Generally, the company involved was very large, had excellent communications with the workshop and encouraged the development of needed specialized skills. In any event, the degree of dependence on few customers was an individual matter and not related to workshop size. Approximately equal percentages of small, medium, and large workshops depended on a few customers for the bulk of contract work.

A combination of circumstances usually determined whether a workshop would find the bulk of its business coming from a few sources. Once this stage had been reached, the workshop had to decide whether it wished to rely on a few contractors or develop a broader base of support.

The following dangers in relying too heavily on a few sources were cited:

1. The loss of one big contractor can create a complete shutdown, resulting in severe damage to worker morale and loss of income.
2. A good personal relationship with key staff members in a large contractor organization may offer little security in the event of promotion, transfer, or retirement. The replacement may have none of the predecessor's loyalties to the workshop.
3. The favored large customer sometimes expects special concessions both in terms of service and in price and he can use his size as a lever to pry these special concessions from the workshop.
4. The rehabilitation functions of a workshop require a diversity of work. Diversity may be difficult to achieve in situations where only one or two contractors provide all the work.
5. Identification of the workshop with one company may produce negative community attitudes. One contractor who was interviewed said the workshop was beginning to look like a subsidiary of a large local manufacturing firm in the community.

Only one of the workshops studied had a policy that limited the extent of business from one contractor. The limitation was set at 40 percent of total annual contract income. Even so, at specific periods during the year it was possible for the contractor to account for 100 percent of total volume.

Workshops that depended heavily on one or two contractors were as a rule happy with this situation as long as contract volume remained high and the flow of work was continuous. Although well aware of the dangers of putting all their eggs in one basket, the security of established sources of support was felt to outweigh the known risks.

Acceptance of Underpriced Contracts

A term frequently heard in workshop circles is *undercutting*. Generally it has a derogatory connotation and is used to denote the unethical practice of pricing considerably below the prevailing market, rendering competition on a fair basis impossible. The exact price level where undercutting occurs is a matter of debate and subjective judgment, and thus it has been facetiously said, with some justification, that undercutting may mean any price charged by a competitor that is lower than your own.

Pricing below cost, on infrequent occasions, is well accepted in industry. When business is slow, industrial firms have been known to take jobs at far less than their usual markup in order to keep machinery in use and key personnel occupied. However, it is understood by industry that this type of pricing cannot continue for any length of time without financial disaster.

Workshop personnel were asked if they ever accepted contracts that they knew were financially unprofitable. Twenty-one did so on occasion. Fourteen reported that such jobs were never accepted.

Statements that unprofitable contracts were sometimes accepted were usually qualified with these observations:

1. The continuation of a planned training program sometimes forced acceptance. This was the comment most frequently made.
2. In any given case, the amount of the loss was very small and the price received close to the competitive market.
3. Low prices were offered only for short-term jobs, since continuation for long periods created excessive damage to the workshop.
4. Unprofitable jobs were accepted as the lesser of two evils when the workshop was faced with an emergency; it was either lay off workers or accept the job.
5. Unprofitable contracts were accepted only if they did not fall into the area of work carried on by normal industry. An example cited was a salvage job where the cost of salvaging was greater than the cost of new materials. Only a workshop badly in need of work for its training program and able to receive the balance of its budget through community support could undertake such a contract.
6. Sometimes jobs on which the workshop had no experience were accepted in order to gain knowledge of the operation. Prices were raised later on.

Personnel in workshops where unprofitable contracts were not accepted pointed out the following:

1. A price below the competitive market subsidizes the low-grade contractor and gives him an unfair competitive advantage over another industrial firm. The injured competitor has a legitimate complaint when he says that charitable contributions are given to workshops to support a program that subsidizes his competitor. In addition to inviting criticism from industry, other workshops have reason to complain. Low pricing tends to drag other workshops down to the level of the lowest pricing policy.

2. A low quotation in an effort to get trial business with the hope of raising prices later is very dangerous. Contractors resist price increases, and the consequent ill will caused by this procedure may offset temporary benefits.

3. Many contractors request quotations in order to determine the price of their own product. If the contractor's selling price is based on a low quotation, the workshop has an obligation to maintain its price.

4. A reputation for low pricing attracts only the undesirable contractors. Eventually all customers will be of the bargain-hunting type and higher grade industrial firms become wary of the workshop.

In analyzing the types of workshops accepting unprofitable contracts, it was found that the size of the workshop had no bearing. Equal numbers of large, small, and medium workshops on occasion took jobs that they knew were unprofitable.

The general conclusion reached by the investigators is that the acceptance of unprofitable contracts should be avoided. Extreme emergency situations may occur where acceptance of small short-run contracts at a low price may be expedient. However, every precaution should be taken to be sure that this is the exception rather than the customary practice.

Occasionally jobs may be underpriced through error with resulting losses to the workshop. Such mistakes are not in the same category as contracts known to be underpriced and accepted because of a workshop director's desire to keep his workers employed. The newer and less experienced workshop director who may be overanxious in this respect and prone to accept unprofitable contracts in critical situations could profit by the advice of those who have had sad experiences. The possibility of continuing damage to the workshop's reputation and the danger of loss of support from responsible community leaders more than offset the possible benefits from the occasional acceptance of contracts that are known to be unprofitable.

chief executive was the preferred contact, particularly if the company had no previous experience with contract work.

Most procurement men preferred to make a business-like sales presentation, stressing the ability of the shop to provide quality service to its customers. The use of a sympathy approach or an appeal to public spirit was looked on with disfavor.

The kinds of opposition raised by prospective customers to the purchase of workshop service and how these were handled by procurement men fell generally along the following lines:

1. Prospective customers were doubtful of the workshop's ability to perform complex work and to meet production and quality requirements. Procurement men responded to such statements by indicating the types of work the shop could do and by citing satisfied customers.

2. On occasion, union opposition to contracting was given as a reason why work could not be given out. A few salesmen were able to overcome this objection by discussing the situation with union officials or by seeking work from another section of the company, such as the office, but in many cases procurement men felt that this objection could not be overcome and eliminated the company from their list of prospects.

3. The prospect stated there was no work available. The salesmen would accept the statement but would ask if they could call again at some future date when work might be needed.

Procurement men who had a thorough knowledge of workshop policies and operations were able to make the most effective sales presentations. Maintenance of sound customer relations was also facilitated when the procurement personnel were completely familiar with all aspects of workshop services.

Most procurement men felt that persistent and repeated selling, preferably during an industry's peak period, was productive.

Public Relations and Promotional Aspects of Contract Procurement

A continuous year-round publicity campaign designed to keep the name of the workshop before the public is a definite aid to the workshop procurement program. However, publicity is only one aspect of contract procurement and should not be expected to substitute for personal selling, the most important element in an adequate program.

Direct mail letters and procurement brochures were also important adjuncts. Personal calls to prospects responding to direct mail letters frequently resulted in completed sales. Brochures considered to be most effective contained a listing of the types of jobs the workshop could do, the reasons why contractors would find it advantageous to give out work, and information about the workshop's ability to do quality work on time and at competitive prices.

Factors To Be Considered in Contract Acceptance or Rejection

If, in their anxiety to obtain badly needed work, workshops accept contracts that they cannot perform or are unable to complete on schedule, they run the risk of jeopardizing future business. The resulting damage to a workshop's reputation, when word of poor performance reaches the industrial grapevine, will more than offset the temporary advantages of full workshop employment. In determining whether to accept a contract, assuming it could be a profitable one, workshops should take the following factors into consideration:

Skill level requirements of both clients and staff

Supervision required

Production capacity of the workshop

Material requirements — whether furnished by the workshop or the contractor

Storage and working space required

Transportation and shipping requirements

Machinery requirements

Quality control requirements

Duration of contract — whether long or short run

Unusual contractor requirements or workshop deficiencies on any of the above factors merit serious consideration before the decision is made to accept or reject the contract.

Central Contract Procurement

The hiring of one solicitor to represent several workshops has been attempted in a number of communities. Currently, the Community Industrial Contract Association of Chicago is successfully operating and servicing four workshops. If a group of workshops contemplate joint contract procurement, their over-all plan should provide for:

- a clearly defined organizational structure governed by a board of interested volunteers as well as workshop representatives

- a competent salesman employed by the association and reporting to the board, not to the individual workshops

- a written statement of the procurement man's responsibilities and duties
- written operating procedures covering agency responsibilities, specifying:
    - the amount of money to be contributed by each workshop for support of the program
    - methods of distributing contracts
    - uniform pricing policies
- regular meetings of workshop representatives to discuss progress and mutual problems, not necessarily always related to contract procurement

Union Attitudes on Contracting to Workshops

The position of labor unions on subcontracting can be explained primarily by the desire to maintain employment for their members by retaining work rather than permitting it to be contracted out for other workers to perform. There is no universal union attitude. Workshop-union co-operation on this and other matters varies from community to community and depends to some extent on the efforts made to explain workshop services. Many instances of opposition can be attributed to failure to keep the union informed. Among the techniques used by workshops in union education were the appointment of labor representatives to workshop boards, periodic meetings with union council officials, and the conducting of guided tours of the workshop for union representatives. Although 21 of the 35 workshops reported some instances of opposition to contracting from unions, most of the cited incidents were considered to be of minor importance.

THE PRICING PROCESS

Overhead

Overhead includes all expenses of operation other than the costs of materials and direct labor. These are real and necessary costs that must be recovered by including them in the price of the product or service. Sheltered workshops, because of their specialized function, have a category of expenses not usually encountered in industry that should be segregated and accounted for separately. These expenses may be called rehabilitation expenses or overhead and are borne by community or other subsidy and not by the individual contractor or workshop customer.

For most sheltered workshops, the use of the direct labor dollar method of allocating production overhead is recommended. In this procedure, overhead costs are computed and related to the cost of direct labor and expressed as a percent of direct labor. Where good records are maintained it is possible to segregate production costs properly from rehabilitation costs and use this information for administrative control and the setting of prices. For specific examples and suggested procedures for segregating rehabilitation cost and computing production overhead, the reader is referred to Chapter IX, the section entitled Concept of Overhead.

Extraordinary Costs

The costs of a service program, or rehabilitation overhead costs, may also be termed the extraordinary costs of workshop operation. These are the factors of overhead that are not found in industry but are present in sheltered workshops because of their specialized structure, operations, and philosophy. These are the extraordinary costs of:

- evaluation services
- workshop placement programs
- workshop training programs
- obsolete equipment
- the therapeutic method
- unproductive labor

While these costs may be present to some extent in industry they represent disproportionate costs in workshops, hence the term *extraordinary costs.* Workshops cannot expect to pass those costs on to the contractor. These are factors of overhead that must be supported by income from other sources.

Pricing Methods

Various pricing methods were used by workshops but the most prevalent and also the recommended method is to compute direct labor costs and add a standard percentage to cover overhead and margin. The percentage factor to be added to direct labor is determined from analysis of costs available in the workshop's financial statement.

There are dangers inherent in accepting competitors' prices or contractors' offered prices as the sole basis for workshop pricing. If workshop prices are set in this manner, it is recommended that they be verified by a cost analysis, since there is no good substitute for a computed price based on actual workshop costs.

Pricing Procedures

In setting a price for a job the following steps or procedures are suggested:

1. Understand the job and exact customer specifications and requirements. If possible get the specifications in writing.
2. Determine whether the workshop can do the job, taking into consideration staff capability, workshop equipment, resources, and capacity.

3. Determine the best method of doing the work to make certain that the computed price is not set on the basis of an inefficient or inaccurate method. The use of outside industrial engineering assistance is recommended where workshop staff is limited. Often this type of help is available on a volunteer basis.
4. Determine the direct labor cost, usually by means of a time study.
5. Determine the proper amount of overhead to add to direct labor, using the workshop's financial statement as a guide.
6. Determine the amount of special costs such as transportation and unusual supervision and handling requirements that need to be added.
7. Add a factor for profit and incidentals.
8. Calculate price by adding the amounts determined in steps 4, 5, 6, and 7.

Record Keeping

Greater emphasis on sound record keeping relating to contract activities appears important for many workshops. Cost records in particular need to be strengthened in many cases, and the consultant services of a cost accountant could well be used to assist in the installation of proper procedures.

Not only do good records provide administrative tools for executive decision and action, but they are of value in providing the data for the pricing of future jobs. Some of the essential records that should be maintained are individual daily work records, over-all workshop daily production records, individual contract production cost records, and a contract summary report covering all details about a job. Examples are shown in Chapter IX.

ANALYSIS OF THE CONTRACTS STUDIED

The following significant characteristics were revealed through detailed analysis of 243 contracts selected as representative by the workshops participating in the study.

1. Direct selling on the part of a workshop representative was the most important means of obtaining contract work. At least 39 percent of all contracts studied came from this source. Even those contracts first coming to the attention of the workshop through other sources had to be sold by a workshop staff member.
2. Contracts were grouped into 10 descriptive classifications illustrating the types of jobs performed in the 35 workshops. These classifications were: Industrial Salvage and Reconditioning, Electrical Assembly, Sewing, General Machine Work, Hand Assembly, Painting, Hand and Machine Packaging, Swatching, Hand and Machine Lettershop Operation, and Miscellaneous. The classifications and examples of each should be useful to workshops in their procurement programs as illustrations of the kinds of jobs done elsewhere.
3. Prices charged by workshops for each hour of nonhandicapped productive labor ranged from $1.20 to $9.00. Prices varied according to workshop size. Average price charged in small workshops was $1.72; in the medium workshops it was $2.40; and in the large workshops it averaged $3.00. Average hourly prices also varied according to the type of contracts performed and the skill levels of jobs.
4. Annual dollar volume of the contracts ranged from less than $100 to over $262,000. The annual median income of the 243 contracts was $1,500. Seventeen percent of the contracts had less than $500 of annual income. The contracts with the largest amount of annual dollar income were in the areas of industrial salvage and reconditioning, general machine work, and electrical assembly.
5. Certain types of contracts provided more man hours of work annually than others. The largest number of man hours generally were provided by salvage of machined rejects and reconditioning of worn machinery and parts, electrical assembly, and general machine work. Painting, swatching, and lettershop work provided fewer man hours per contract.
6. Continuity of contracts over a year's time also varied by type of contract. The average number of months during a year in which contracts were performed were highest for industrial salvage and reconditioning, electrical assembly, sewing, and general machine work. Swatching and hand lettering contracts provided the least amount of continuous employment over a yearly period.
7. Of the 243 contracts, the work in 58 percent was of a simple nature and could be learned by a nonhandicapped person in less than a week; 21 percent required one week to one month to learn and understand. The difficult jobs were more frequently performed in the large and medium-sized workshops. Industrial salvage and reconditioning, electrical assembly, and sewing jobs required the greatest amount of learning time. Hand assembly, packaging, and hand lettershop operations required the least.
8. Hand disabilities were most often mentioned as a type of handicap that would disqualify a worker from performing certain types of jobs. This was especially so in the case of contracts involving the op-

eration of machines. Mental retardation and blindness were also mentioned frequently as disqualifying conditions on several types of contracts. Workers with good hands and normal intelligence were generally considered capable of performing practically all of the 243 contracts.

9. Transportation of materials and finished goods was most often handled by the contractor (57% of all cases). In 26 percent of the contracts the workshop assumed full responsibility for transportation, and in 17 percent the workshop and the contractor co-operated.
10. Nineteen of the 35 workshops had on occasion purchased materials for the performance of contract work and had spent from $300 annually to as much as $79,000. Materials were usually purchased for the contracts of the higher skill levels, especially in the areas of electrical assembly, power sewing, industrial salvage and reconditioning, and machine lettershop work. Where materials were purchased by the workshop, there was usually a markup of 5 to 10 percent to the contractor.
11. Fifty-eight percent of the contracts were performed with the use of industrial machinery. Contracts involving the use of machines more frequently were performed in the large and medium-sized workshops. In 70 percent of the cases where machines were used the machines were the property of the workshop; in 26 percent of the cases the machines were furnished by the contractor; and in 4 percent of the cases the workshop used both its own machines and contractor-loaned equipment.
12. Most contract jobs required little storage space. Only 12 percent required 500 square feet or more. Generally, electrical assembly contracts required the least amount of storage space, and industrial salvage and reconditioning jobs required the most. Contracts requiring large amounts of storage space were discouraged by charges for storage or by specific policies limiting the amount of storage space a contract could occupy.

SELECTED FINANCIAL ASPECTS OF CONTRACTING

Not many workshops are able to meet total costs (excluding rehabilitation expenses) from contract income. Small workshops generally showed a larger spread between contract income and operating costs and had fewer profitable jobs. One reason for this situation is the small workshops' tendency to charge lower prices. Also, a workshop needs to attain a certain minimum size before its fixed costs can be expected to be covered by contract income.

Workers in large workshops had higher total annual earnings than those in small workshops. This situation came about largely because jobs of higher skill levels were more frequently performed, higher prices were charged for comparable work, and more money was thus available for wages.

Seasonality

The busy periods for workshops generally are the spring and fall months. January is nearly always the slowest month, along with the summer period of July and August. Workshop directors can anticipate the need to intensify contract procurement activities at these times.

Dependence on Largest Contractors

Dependence on one contractor for as much as 60 percent of total contract income occurred in only seven workshops. Although directors believed that a few large sustaining contracts were desirable, most were cognizant of the danger of relying too heavily on one or two sources. Frequently cited were instances of severe problems created by the unexpected loss of large contractors when workshops had not made sufficient progress in diversifying their source of business.

Acceptance of Unprofitable Contracts

Twenty-one of the 35 workshops on occasion because the need for work was pressing accepted contracts that were known to be unprofitable. Although there may be situations when it is unavoidable, every precaution should be taken to make certain that such a practice is the exception and not custom. It is clear that the danger to the workshop's reputation and possible loss of support from community leaders more than offset temporary benefits from occasional acceptance of contracts known to be unprofitable.

WHAT CONTRACTORS SAY ABOUT SHELTERED WORKSHOPS

One hundred and thirty-two contractors who had purchased workshop services were interviewed.

Generally, contractors were interested in the workshop because it filled a business need and thought in terms of how it could solve their specific problems. A workshop that impressed them as operating under sound business principles had the best possibility of getting their approval and contract work.

The largest single group of contractors (21%) first learned of workshops through calls from salesmen or workshop representatives. All other soliciting devices were secondary to the direct sales approach. Contractors stated that sales presentations should be businesslike and straightforward and stress the services that the workshop can perform for them.

Contractors generally rated workshop prices as low, and it is the opinion of the investigators that workshops could in many cases increase prices without a significant loss in contract revenue.

When asked to rate or evaluate workshops in terms of ability to do work on a regular businesslike production and quality basis, 39 percent said workshops were the same in performance as most industrial organizations; 43 percent said workshops were better, and 12 percent said workshops were poorer than most industrial organizations.

Favorable comments were received for excellent cooperation and customer service, good delivery, conscientious workers, good supervision, and excellent quality. Unfavorable comments related most often to poor quality, improper inspection, lax supervision, poor delivery, and lack of industrial know-how.

The majority of contractors who had visited workshops (77%) were favorably impressed. However, the unfavorable comments frequently indicated that workshops were unaware of negative opinions. This finding points to the need for caution and to the importance of making certain that the workshop meets industry's expectations before a blanket invitation is issued to potential customers to visit the operation.

DIFFERENCES BETWEEN LARGE AND SMALL WORKSHOPS

Certain characteristics of large workshops (contract income of more than $100,000) distinguish them from the smaller workshops.

Large workshops generally:

1) charge higher prices for comparable work (it is the opinion of the investigators that this was due to greater skill in pricing and better liaison with contractors that enabled them to ask for fair prices),

2) were able to meet a greater portion of the production costs from contract income,

3) had more individual contracts of a profitable nature,

4) performed more complex contracts requiring higher skill levels,

5) paid their employees more in total annual wages, and

6) employed the use of machinery more frequently than smaller workshops.

COMMENTS

It is hoped that this report has fulfilled its objective of providing specific reference data on contracting operations of sheltered workshops. Throughout the study we have stressed the need for sound business management, realistic pricing, and good records.

The sheltered workshop, an unusual establishment that is both a rehabilitation facility and a business enterprise, will not succeed if its management is content to overlook either aspect of this dual function without due consideration to the other. Workshop staff members who have been trained in the rehabilitation professions will need to diligently learn the techniques, the terminology, and the operations of industry.

With the rapid growth of sheltered workshops, it can be anticipated that competition for contracts will become more intensified. Even workshops that have had comparatively successful contract procurement programs may find that more effort is required to maintain their current level. It is essential, therefore, that workshops adopt pertinent techniques that their industrial counterparts have found to be productive. This process will frequently require reorientation of staff to the importance of business management and aggressive salesmanship. The workshop director who is imaginative in developing new sources of contract work and creating opportunities in hitherto unexplored areas will direct the workshop that survives in the critical years ahead.

APPENDIX

TIME STUDY

by

Professor H. Barrett Rogers
School of Business
Northwestern University

Time Standards Are Essential

The bidding price for a new contract cannot be determined without first predicting the time and cost for a specific method of manufacture. Until more data is available, this prediction is the "standard," because, with a given process, no other predictions are possible unless they reflect corrections of calculations or judgment. Scheduling production operations through various work centers or predicting completion and delivery dates cannot be done intelligently without an estimate of the time required for each operation. With no better information available, this estimate becomes the basis for production control and, for practical purposes, is the standard. Production always must be planned for the future, never for the past, which all actual costs reflect, and it must be controlled if the plans are to be realized.

Time standards are absolutely essential for such planning and control, regardless of how crudely and erroneously they are estimated or how scientifically and accurately they are calculated. Although there is no such thing as an absolutely accurate time standard, some standards are more representative of "normal" or desired performance than others. The more representative the values, the better will be the planning and control. Tested time study procedures tend to produce the most representative values, those most reliable for effective management.

What Is Standard?

Although a time standard may be used primarily for cost or scheduling purposes, nevertheless it implies that the prescribed task will be accomplished within a period approximately equivalent to the time indicated by the standard. Therefore, it carries the connotation of work pace or speed of performance. Thus a concept is necessary of what pace is the standard pace. "Standard Work Pace" is a mental concept that varies between industries or geographical areas according to custom, between plants according to the consensus of each management group, and even from moment to moment according to the ever-changing attitude of an individual observer. To reduce this indefinite and unstable characteristic of work standards, agreements have been attempted, with the result that broad ranges of work pace can be described—but only in general terms having different meanings to different people.

The best performances of a given task by highly trained experts tend to be relatively uniform and stable. For example the "expert" time for running one mile is about four minutes. Many athletes have closely approached this time, a few have bettered it, but the deviations are small, perhaps three or four seconds, or about one percent variation. From the viewpoint of having a specific and stable value, four minutes would be an excellent choice as the "standard" time for a person to travel one mile on foot. But, among the 65 million industrial employees in the United States, probably not one could run a mile in four minutes and few could run continuously at any speed for a whole mile. Thus, for industrial employees, a work pace of 15 miles per hour for foot travel is a completely unattainable goal. Technically, the four-minute mile could be a useful and satisfactory standard for this particular task, but to determine equivalent standards for all industrial operations, where no such highly trained experts are available, would be virtually impossible. Furthermore most people gain satisfaction by achieving or exceeding goals; psychologically a performance efficiency expressed as a percentage of goal is not very flattering and therefore the four-minute mile would be quite unrealistic as an industrial standard of work pace.

One logically might suggest that work standards within a given plant should reflect the "average" work pace in that plant and, to a very great extent, this is what actually occurs. The average work pace, however, may be quite different in one plant than it is in another and, if the hourly wage rates were the same in both plants (that is, determined from the same labor market), the costs also would be different and not be realistically competitive. Certainly the average work pace for handicapped clients in a sheltered workshop would not compare favorably with the average work pace of normal workers in a regular commercial establishment.

A normal standard time may be considered as consisting of two major segments: *1)* the time required for a normal operator, working at a normal pace (one that may be maintained for a full day) and without interruptions, to perform one cycle of operation or to produce one unit of output under specific conditions, following a prescribed method, and *2)* an additional amount of time to cover a proportional share of the irregular miscellaneous activities and unavoidable delays, which otherwise cannot be identified directly with specific units of product.

Allowance for Delays

The unavoidable delays do not follow a uniform daily pattern, but over long periods (each period being one or more weeks) they do tend to remain fairly constant for a given class of work. Therefore, the percentage of the total work time available (say an eight-hour day or 48-hour week) that is devoted to unavoidable delays can be predicted with considerable reliability. Such a delay percentage can be obtained by means of "production time" or "activity sampling" studies over an extended period of one or more weeks.

If some portion of a work day is consumed by nonproductive activities, only the remainder of the day (the net working time) can be devoted to productive work. A direct operation time study usually is of relatively short duration so that few if any "delays" are likely to be included. Accordingly the base (normalized) time determined from the direct operation study is equivalent to "net working time" and must be adjusted by the proper "delay factor," which will make it equivalent to the total available time (the full day), including the delays.

As an exaggerated illustration, assume that legitimate miscellaneous activities and delays accounted for 25 percent of the total available time, leaving only 75 percent, or six hours, as "net working time" in an eight-hour day. The six hours must be adjusted by a "delay factor" that will raise it to eight hours. In general, the

$$\text{Delay factor} = \frac{\text{Total delay percentage}}{\text{100 minus the total delay percentage}}$$

and, for this specific numerical illustration,

$$\text{Delay factor} = \frac{25}{100 - 25} = \frac{25}{75} = .333.$$

A factor (or ratio) of 1.00 may be used to represent the base time, which must be adjusted. Adding 1.00 to .333 gives the total

Allowance factor = 1.333

so that, with a single sliderule multiplication,

Total time = (Net working time) x (Allowance factor) or,

Total time = (six hours) x 1.333 = 8 hours.

It should be noted that the "delay percentage" represents a portion of the total available time, while the "allowance factor" is a ratio by which the net working time is multiplied to equal the total available time. Applying the same procedure to the normalized base cycle time from a direct operation time study,

Total standard time = (Normalized base cycle time) x (Allowance factor).

Although other calculating routines sometimes give similar results, they may not do so in all situations and particularly when there is a change in total delay time. Therefore the recommended procedure is to: *1)* make actual observations over an extended period of all the activities of all the operators in a homogeneous work center, either by continuous timing or by tally-sampling; *2)* find the total time spent by all operators on each classification of activity and convert this total to a percentage of the total time available for all operators; *3)* select those percentages for legitimate (unavoidable) delays and add to get the total "allowable" delay percentage; *4)* divide this "total allowable delay percentage" by "100 minus the total delay percentage" to determine the "delay factor"; *5)* add 1.00 to the delay factor to obtain the "allowance factor"; and *6)* multiply this allowance factor by the normalized base time of each time study to obtain the "standard time" for the cycle or unit of output.

In some companies, separate "delay studies" are made for each significantly different work center to obtain objective data with which to justify the allowance factors used in the respective work centers. This practice is recommended because, without such proof of validity, allowance factors may be controversial and subject to deterioration by negotiated compromise. Also different kinds of work (or different work centers) may deserve different allowance factors, and equitable differences can be determined only from valid data. Entirely legitimate allowance factors may range from as low as 1.10 to as high as 1.40 or higher, according to the nature and amount of the miscellaneous activities that are unavoidable and, perhaps for convenience, are not included in the normalized base times of the direct operation studies.

Estimated Factors

Many companies, however, neglect the delay studies and, by means of "educated guesses" or guided by published accounts of allowance factors used in other companies, arbitrarily decide what allowance factors to use. These arbitrary decisions seldom clarify whether the selected figure is presumed to be the "delay percentage" (of the available time), or the "delay factor" (for direct use with the normalized base times). Ordinarily, those who use such values actually do not understand the difference; they commonly speak as if 15 percent of the work day is consumed by delays but apply 0.15 as the delay factor or 1.15 as the allowance factor. Brief calculations will show that, if allowable delays consume 15 percent of the day, the delay factor should be 0.177 or that a delay factor of 0.15 allows only 13.1 percent of the day for delays. This difference becomes exaggerated when legitimate delays consume larger portions of the day, and the confusion in application has been the cause of many grievances and costly arbitrations.

The amount of allowance must of course be related to the particular work situation and may be quite different in a poorly organized workshop with erratic work flow than it is in a well-engineered, smooth-running shop.

Reasonably Typical Values

Nevertheless, for long-running orders (large lot sizes) an allowance factor of 1.15 has been well supported by extensive delay studies of manual operations, while a factor of 1.20 is more realistic for manual operations in jobbing shops where shorter custom orders predominate; the most appropriate value will depend upon the particular local conditions. At one large company, a highly respected pioneer in the field of work measurement, a delay factor of 0.15 was applied to each manual (or manually controlled) element within an operation cycle, and a delay factor of 0.10 was applied to each element during which a machine was completely self-operating (as in power-feed) and the operator was idle—merely waiting for the machine element to be completed. However, these figures were not valid in a subsidiary company where the operators were exposed to more "miscellaneous" activities than in the parent company. If operators must sharpen their own cutting tools and perform other minor maintenance or set-up functions, allowance factors higher than 1.20 may well be justified.

Base Time

The heart of a "standard time" consists of the "normalized (base) times" for the motions or elements necessary to perform the operation. These normalized times for a specific operation may be obtained by a direct stop-watch time study of an operator actually performing the operation, or they may be selected from previously established "standard time data" that have been accumulated from statistical analyses of many studies on many operators performing many different operations.

Timing Devices

Very adequate time studies can be made with an ordinary wrist watch or pocket watch that divides time into minutes and seconds, particularly if the second hand sweeps over the entire dial; in fact, such a watch may be preferred for long-period "delay studies," because the "time of day" can be recorded for each occurrence of a change in activity, providing easy verification of the calculated sum of the several activity times with the total elapsed time. However, since mixing minutes and seconds is awkward and conducive to calculation errors, a decimal system is preferable. The ability to start and stop the timing device at specific points in the work cycle also is a great convenience.

Decimal Minute Watch. For general time study work, two types of stop watches commonly are used. The more popular is the "*decimal minute*" watch. One type requires three successive pressures on the stem to start, stop, and return the hands to zero. A more desirable type has a slide on the side of the case; a downward motion stops the watch, an upward motion toward the winding stem starts the hands from the position where they had been stopped, and a pressure on the stem returns the hands to zero. With the slide in running position, a pressure and release of the stem returns the hands to zero and immediately starts them, a technique used in "snap-back" readings.

The large dial of the decimal minute watch has 100 divisions around its edge, each consecutive tenth division being identified with numbers 0 through 9, and each fifth line is slightly longer than the others. A center-mounted sweep hand makes one revolution per minute (60 revolutions per hour) so that each small division over which its tip passes represents 0.01 minute. A small dial (resembling the seconds dial on an ordinary watch) has 30 divisions, numbered in groups of five from 5 to 30, and usually is located in the upper portion of the main dial. The small hand moves one division for each complete revolution of the large hand and thus accumulates a total of 30 minutes. Therefore, the complete watch cycle is 30 minutes. If the duration of a time study exceeds one half hour, the observer must note the number of complete cycles through which the watch has passed. Customarily this is verified by recording the times of day when the study was started and ended.

Decimal minute watches are popular for several reasons: *1)* the employees are familiar with the concept of a minute as a unit of time and quickly comprehend decimal fractions of a minute; *2)* machine speeds and feeds commonly are stated in "feet per minute," "revolutions per minute," "inches per minute," or "strokes per minute"; *3)* expressing short-element averages to three (or occasionally four) decimal places is not particularly burdensome. However, minor disadvantages include: *1)* the speed of the sweep hand is relatively slow—a faster running watch is advantageous for timing very short elements; *2)* minutes generally must be converted to hours for use in payroll calculations and occasionally for indicating the time standard; the two different systems of time units (minutes and hours) may be confused and result in embarrassing errors.

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A continuous year-round publicity campaign designed to keep the name of the workshop before the public is a definite aid to the workshop procurement program. However, publicity is only one aspect of contract procurement and should not be expected to substitute for personal selling, the most important element in an adequate program.

Direct mail letters and procurement brochures were also important adjuncts. Personal calls to prospects responding to direct mail letters frequently resulted in completed sales. Brochures considered to be most effective contained a listing of the types of jobs the workshop could do, the reasons why contractors would find it advantageous to give out work, and information about the workshop's ability to do quality work on time and at competitive prices.

Factors To Be Considered in Contract Acceptance or Rejection

If, in their anxiety to obtain badly needed work, workshops accept contracts that they cannot perform or are unable to complete on schedule, they run the risk of jeopardizing future business. The resulting damage to a workshop's reputation, when word of poor performance reaches the industrial grapevine, will more than offset the temporary advantages of full workshop employment. In determining whether to accept a contract, assuming it could be a profitable one, workshops should take the following factors into consideration:

Skill level requirements of both clients and staff

Supervision required

Production capacity of the workshop

Material requirements — whether furnished by the workshop or the contractor

Storage and working space required

Transportation and shipping requirements

Machinery requirements

Quality control requirements

Duration of contract — whether long or short run

Unusual contractor requirements or workshop deficiencies on any of the above factors merit serious consideration before the decision is made to accept or reject the contract.

Central Contract Procurement

The hiring of one solicitor to represent several workshops has been attempted in a number of communities. Currently, the Community Industrial Contract Association of Chicago is successfully operating and servicing four workshops. If a group of workshops contemplate joint contract procurement, their over-all plan should provide for:

- a clearly defined organizational structure governed by a board of interested volunteers as well as workshop representatives
- a competent salesman employed by the association and reporting to the board, not to the individual workshops

- a written statement of the procurement man's responsibilities and duties
- written operating procedures covering agency responsibilities, specifying:
  - the amount of money to be contributed by each workshop for support of the program
  - methods of distributing contracts
  - uniform pricing policies
- regular meetings of workshop representatives to discuss progress and mutual problems, not necessarily always related to contract procurement

Union Attitudes on Contracting to Workshops

The position of labor unions on subcontracting can be explained primarily by the desire to maintain employment for their members by retaining work rather than permitting it to be contracted out for other workers to perform. There is no universal union attitude. Workshop-union co-operation on this and other matters varies from community to community and depends to some extent on the efforts made to explain workshop services. Many instances of opposition can be attributed to failure to keep the union informed. Among the techniques used by workshops in union education were the appointment of labor representatives to workshop boards, periodic meetings with union council officials, and the conducting of guided tours of the workshop for union representatives. Although 21 of the 35 workshops reported some instances of opposition to contracting from unions, most of the cited incidents were considered to be of minor importance.

THE PRICING PROCESS

Overhead

Overhead includes all expenses of operation other than the costs of materials and direct labor. These are real and necessary costs that must be recovered by including them in the price of the product or service. Sheltered workshops, because of their specialized function, have a category of expenses not usually encountered in industry that should be segregated and accounted for separately. These expenses may be called rehabilitation expenses or overhead and are borne by community or other subsidy and not by the individual contractor or workshop customer.

For most sheltered workshops, the use of the direct labor dollar method of allocating production overhead is recommended. In this procedure, overhead costs are computed and related to the cost of direct labor and expressed as a percent of direct labor. Where good records are maintained it is possible to segregate production costs properly from rehabilitation costs and use this information for administrative control and the setting of prices. For specific examples and suggested procedures for segregating rehabilitation cost and computing production overhead, the reader is referred to Chapter IX, the section entitled Concept of Overhead.

Extraordinary Costs

The costs of a service program, or rehabilitation overhead costs, may also be termed the extraordinary costs of workshop operation. These are the factors of overhead that are not found in industry but are present in sheltered workshops because of their specialized structure, operations, and philosophy. These are the extraordinary costs of:

- evaluation services
- workshop placement programs
- workshop training programs
- obsolete equipment
- the therapeutic method
- unproductive labor

While these costs may be present to some extent in industry they represent disproportionate costs in workshops, hence the term *extraordinary costs.* Workshops cannot expect to pass those costs on to the contractor. These are factors of overhead that must be supported by income from other sources.

Pricing Methods

Various pricing methods were used by workshops but the most prevalent and also the recommended method is to compute direct labor costs and add a standard percentage to cover overhead and margin. The percentage factor to be added to direct labor is determined from analysis of costs available in the workshop's financial statement.

There are dangers inherent in accepting competitors' prices or contractors' offered prices as the sole basis for workshop pricing. If workshop prices are set in this manner, it is recommended that they be verified by a cost analysis, since there is no good substitute for a computed price based on actual workshop costs.

Pricing Procedures

In setting a price for a job the following steps or procedures are suggested:

1. Understand the job and exact customer specifications and requirements. If possible get the specifications in writing.
2. Determine whether the workshop can do the job, taking into consideration staff capability, workshop equipment, resources, and capacity.

3. Determine the best method of doing the work to make certain that the computed price is not set on the basis of an inefficient or inaccurate method. The use of outside industrial engineering assistance is recommended where workshop staff is limited. Often this type of help is available on a volunteer basis.
4. Determine the direct labor cost, usually by means of a time study.
5. Determine the proper amount of overhead to add to direct labor, using the workshop's financial statement as a guide.
6. Determine the amount of special costs such as transportation and unusual supervision and handling requirements that need to be added.
7. Add a factor for profit and incidentals.
8. Calculate price by adding the amounts determined in steps 4, 5, 6, and 7.

Record Keeping

Greater emphasis on sound record keeping relating to contract activities appears important for many workshops. Cost records in particular need to be strengthened in many cases, and the consultant services of a cost accountant could well be used to assist in the installation of proper procedures.

Not only do good records provide administrative tools for executive decision and action, but they are of value in providing the data for the pricing of future jobs. Some of the essential records that should be maintained are individual daily work records, over-all workshop daily production records, individual contract production cost records, and a contract summary report covering all details about a job. Examples are shown in Chapter IX.

ANALYSIS OF THE CONTRACTS STUDIED

The following significant characteristics were revealed through detailed analysis of 243 contracts selected as representative by the workshops participating in the study.

1. Direct selling on the part of a workshop representative was the most important means of obtaining contract work. At least 39 percent of all contracts studied came from this source. Even those contracts first coming to the attention of the workshop through other sources had to be sold by a workshop staff member.
2. Contracts were grouped into 10 descriptive classifications illustrating the types of jobs performed in the 35 workshops. These classifications were: Industrial Salvage and Reconditioning, Electrical Assembly, Sewing, General Machine Work, Hand Assembly, Painting, Hand and Machine Packaging, Swatching, Hand and Machine Lettershop Operation, and Miscellaneous. The classifications and examples of each should be useful to workshops in their procurement programs as illustrations of the kinds of jobs done elsewhere.
3. Prices charged by workshops for each hour of nonhandicapped productive labor ranged from $1.20 to $9.00. Prices varied according to workshop size. Average price charged in small workshops was $1.72; in the medium workshops it was $2.40; and in the large workshops it averaged $3.00. Average hourly prices also varied according to the type of contracts performed and the skill levels of jobs.
4. Annual dollar volume of the contracts ranged from less than $100 to over $262,000. The annual median income of the 243 contracts was $1,500. Seventeen percent of the contracts had less than $500 of annual income. The contracts with the largest amount of annual dollar income were in the areas of industrial salvage and reconditioning, general machine work, and electrical assembly.
5. Certain types of contracts provided more man hours of work annually than others. The largest number of man hours generally were provided by salvage of machined rejects and reconditioning of worn machinery and parts, electrical assembly, and general machine work. Painting, swatching, and lettershop work provided fewer man hours per contract.
6. Continuity of contracts over a year's time also varied by type of contract. The average number of months during a year in which contracts were performed were highest for industrial salvage and reconditioning, electrical assembly, sewing, and general machine work. Swatching and hand lettering contracts provided the least amount of continuous employment over a yearly period.
7. Of the 243 contracts, the work in 58 percent was of a simple nature and could be learned by a nonhandicapped person in less than a week; 21 percent required one week to one month to learn and understand. The difficult jobs were more frequently performed in the large and medium-sized workshops. Industrial salvage and reconditioning, electrical assembly, and sewing jobs required the greatest amount of learning time. Hand assembly, packaging, and hand lettershop operations required the least.
8. Hand disabilities were most often mentioned as a type of handicap that would disqualify a worker from performing certain types of jobs. This was especially so in the case of contracts involving the op-

eration of machines. Mental retardation and blindness were also mentioned frequently as disqualifying conditions on several types of contracts. Workers with good hands and normal intelligence were generally considered capable of performing practically all of the 243 contracts.

9. Transportation of materials and finished goods was most often handled by the contractor (57% of all cases). In 26 percent of the contracts the workshop assumed full responsibility for transportation, and in 17 percent the workshop and the contractor co-operated.
10. Nineteen of the 35 workshops had on occasion purchased materials for the performance of contract work and had spent from $300 annually to as much as $79,000. Materials were usually purchased for the contracts of the higher skill levels, especially in the areas of electrical assembly, power sewing, industrial salvage and reconditioning, and machine lettershop work. Where materials were purchased by the workshop, there was usually a markup of 5 to 10 percent to the contractor.
11. Fifty-eight percent of the contracts were performed with the use of industrial machinery. Contracts involving the use of machines more frequently were performed in the large and medium-sized workshops. In 70 percent of the cases where machines were used the machines were the property of the workshop; in 26 percent of the cases the machines were furnished by the contractor; and in 4 percent of the cases the workshop used both its own machines and contractor-loaned equipment.
12. Most contract jobs required little storage space. Only 12 percent required 500 square feet or more. Generally, electrical assembly contracts required the least amount of storage space, and industrial salvage and reconditioning jobs required the most. Contracts requiring large amounts of storage space were discouraged by charges for storage or by specific policies limiting the amount of storage space a contract could occupy.

SELECTED FINANCIAL ASPECTS OF CONTRACTING

Not many workshops are able to meet total costs (excluding rehabilitation expenses) from contract income. Small workshops generally showed a larger spread between contract income and operating costs and had fewer profitable jobs. One reason for this situation is the small workshops' tendency to charge lower prices. Also, a workshop needs to attain a certain minimum size before its fixed costs can be expected to be covered by contract income.

Workers in large workshops had higher total annual earnings than those in small workshops. This situation came about largely because jobs of higher skill levels were more frequently performed, higher prices were charged for comparable work, and more money was thus available for wages.

Seasonality

The busy periods for workshops generally are the spring and fall months. January is nearly always the slowest month, along with the summer period of July and August. Workshop directors can anticipate the need to intensify contract procurement activities at these times.

Dependence on Largest Contractors

Dependence on one contractor for as much as 60 percent of total contract income occurred in only seven workshops. Although directors believed that a few large sustaining contracts were desirable, most were cognizant of the danger of relying too heavily on one or two sources. Frequently cited were instances of severe problems created by the unexpected loss of large contractors when workshops had not made sufficient progress in diversifying their source of business.

Acceptance of Unprofitable Contracts

Twenty-one of the 35 workshops on occasion because the need for work was pressing accepted contracts that were known to be unprofitable. Although there may be situations when it is unavoidable, every precaution should be taken to make certain that such a practice is the exception and not custom. It is clear that the danger to the workshop's reputation and possible loss of support from community leaders more than offset temporary benefits from occasional acceptance of contracts known to be unprofitable.

WHAT CONTRACTORS SAY ABOUT SHELTERED WORKSHOPS

One hundred and thirty-two contractors who had purchased workshop services were interviewed.

Generally, contractors were interested in the workshop because it filled a business need and thought in terms of how it could solve their specific problems. A workshop that impressed them as operating under sound business principles had the best possibility of getting their approval and contract work.

The largest single group of contractors (21%) first learned of workshops through calls from salesmen or workshop representatives. All other soliciting devices were secondary to the direct sales approach. Contractors stated that sales presentations should be businesslike and straightforward and stress the services that the workshop can perform for them.

Contractors generally rated workshop prices as low, and it is the opinion of the investigators that workshops could in many cases increase prices without a significant loss in contract revenue.

When asked to rate or evaluate workshops in terms of ability to do work on a regular businesslike production and quality basis, 39 percent said workshops were the same in performance as most industrial organizations; 43 percent said workshops were better, and 12 percent said workshops were poorer than most industrial organizations.

Favorable comments were received for excellent cooperation and customer service, good delivery, conscientious workers, good supervision, and excellent quality. Unfavorable comments related most often to poor quality, improper inspection, lax supervision, poor delivery, and lack of industrial know-how.

The majority of contractors who had visited workshops (77%) were favorably impressed. However, the unfavorable comments frequently indicated that workshops were unaware of negative opinions. This finding points to the need for caution and to the importance of making certain that the workshop meets industry's expectations before a blanket invitation is issued to potential customers to visit the operation.

DIFFERENCES BETWEEN LARGE AND SMALL WORKSHOPS

Certain characteristics of large workshops (contract income of more than $100,000) distinguish them from the smaller workshops.

Large workshops generally:

1) charge higher prices for comparable work (it is the opinion of the investigators that this was due to greater skill in pricing and better liaison with contractors that enabled them to ask for fair prices),
2) were able to meet a greater portion of the production costs from contract income,
3) had more individual contracts of a profitable nature,
4) performed more complex contracts requiring higher skill levels,
5) paid their employees more in total annual wages, and
6) employed the use of machinery more frequently than smaller workshops.

COMMENTS

It is hoped that this report has fulfilled its objective of providing specific reference data on contracting operations of sheltered workshops. Throughout the study we have stressed the need for sound business management, realistic pricing, and good records.

The sheltered workshop, an unusual establishment that is both a rehabilitation facility and a business enterprise, will not succeed if its management is content to overlook either aspect of this dual function without due consideration to the other. Workshop staff members who have been trained in the rehabilitation professions will need to diligently learn the techniques, the terminology, and the operations of industry.

With the rapid growth of sheltered workshops, it can be anticipated that competition for contracts will become more intensified. Even workshops that have had comparatively successful contract procurement programs may find that more effort is required to maintain their current level. It is essential, therefore, that workshops adopt pertinent techniques that their industrial counterparts have found to be productive. This process will frequently require reorientation of staff to the importance of business management and aggressive salesmanship. The workshop director who is imaginative in developing new sources of contract work and creating opportunities in hitherto unexplored areas will direct the workshop that survives in the critical years ahead.

APPENDIX

TIME STUDY

by

Professor H. Barrett Rogers
School of Business
Northwestern University

Time Standards Are Essential

The bidding price for a new contract cannot be determined without first predicting the time and cost for a specific method of manufacture. Until more data is available, this prediction is the "standard," because, with a given process, no other predictions are possible unless they reflect corrections of calculations or judgment. Scheduling production operations through various work centers or predicting completion and delivery dates cannot be done intelligently without an estimate of the time required for each operation. With no better information available, this estimate becomes the basis for production control and, for practical purposes, is the standard. Production always must be planned for the future, never for the past, which all actual costs reflect, and it must be controlled if the plans are to be realized.

Time standards are absolutely essential for such planning and control, regardless of how crudely and erroneously they are estimated or how scientifically and accurately they are calculated. Although there is no such thing as an absolutely accurate time standard, some standards are more representative of "normal" or desired performance than others. The more representative the values, the better will be the planning and control. Tested time study procedures tend to produce the most representative values, those most reliable for effective management.

What Is Standard?

Although a time standard may be used primarily for cost or scheduling purposes, nevertheless it implies that the prescribed task will be accomplished within a period approximately equivalent to the time indicated by the standard. Therefore, it carries the connotation of work pace or speed of performance. Thus a concept is necessary of what pace is the standard pace. "Standard Work Pace" is a mental concept that varies between industries or geographical areas according to custom, between plants according to the consensus of each management group, and even from moment to moment according to the ever-changing attitude of an individual observer. To reduce this indefinite and unstable characteristic of work standards, agreements have been attempted, with the result that broad ranges of work pace can be described—but only in general terms having different meanings to different people.

The best performances of a given task by highly trained experts tend to be relatively uniform and stable. For example the "expert" time for running one mile is about four minutes. Many athletes have closely approached this time, a few have bettered it, but the deviations are small, perhaps three or four seconds, or about one percent variation. From the viewpoint of having a specific and stable value, four minutes would be an excellent choice as the "standard" time for a person to travel one mile on foot. But, among the 65 million industrial employees in the United States, probably not one could run a mile in four minutes and few could run continuously at any speed for a whole mile. Thus, for industrial employees, a work pace of 15 miles per hour for foot travel is a completely unattainable goal. Technically, the four-minute mile could be a useful and satisfactory standard for this particular task, but to determine equivalent standards for all industrial operations, where no such highly trained experts are available, would be virtually impossible. Furthermore most people gain satisfaction by achieving or exceeding goals; psychologically a performance efficiency expressed as a percentage of goal is not very flattering and therefore the four-minute mile would be quite unrealistic as an industrial standard of work pace.

One logically might suggest that work standards within a given plant should reflect the "average" work pace in that plant and, to a very great extent, this is what actually occurs. The average work pace, however, may be quite different in one plant than it is in another and, if the hourly wage rates were the same in both plants (that is, determined from the same labor market), the costs also would be different and not be realistically competitive. Certainly the average work pace for handicapped clients in a sheltered workshop would not compare favorably with the average work pace of normal workers in a regular commercial establishment.

A normal standard time may be considered as consisting of two major segments: *1)* the time required for a normal operator, working at a normal pace (one that may be maintained for a full day) and without interruptions, to perform one cycle of operation or to produce one unit of output under specific conditions, following a prescribed method, and *2)* an additional amount of time to cover a proportional share of the irregular miscellaneous activities and unavoidable delays, which otherwise cannot be identified directly with specific units of product.

Allowance for Delays

The unavoidable delays do not follow a uniform daily pattern, but over long periods (each period being one or more weeks) they do tend to remain fairly constant for a given class of work. Therefore, the percentage of the total work time available (say an eight-hour day or 48-hour week) that is devoted to unavoidable delays can be predicted with considerable reliability. Such a delay percentage can be obtained by means of "production time" or "activity sampling" studies over an extended period of one or more weeks.

If some portion of a work day is consumed by nonproductive activities, only the remainder of the day (the net working time) can be devoted to productive work. A direct operation time study usually is of relatively short duration so that few if any "delays" are likely to be included. Accordingly the base (normalized) time determined from the direct operation study is equivalent to "net working time" and must be adjusted by the proper "delay factor," which will make it equivalent to the total available time (the full day), including the delays.

As an exaggerated illustration, assume that legitimate miscellaneous activities and delays accounted for 25 percent of the total available time, leaving only 75 percent, or six hours, as "net working time" in an eight-hour day. The six hours must be adjusted by a "delay factor" that will raise it to eight hours. In general, the

$$\text{Delay factor} = \frac{\text{Total delay percentage}}{\text{100 minus the total delay percentage}}$$

and, for this specific numerical illustration,

$$\text{Delay factor} = \frac{25}{100 - 25} = \frac{25}{75} = .333.$$

A factor (or ratio) of 1.00 may be used to represent the base time, which must be adjusted. Adding 1.00 to .333 gives the total

$$\text{Allowance factor} = 1.333$$

so that, with a single sliderule multiplication,

Total time = (Net working time) x (Allowance factor) or,

Total time = (six hours) x 1.333 = 8 hours.

It should be noted that the "delay percentage" represents a portion of the total available time, while the "allowance factor" is a ratio by which the net working time is multiplied to equal the total available time. Applying the same procedure to the normalized base cycle time from a direct operation time study,

Total standard time = (Normalized base cycle time) x (Allowance factor).

Although other calculating routines sometimes give similar results, they may not do so in all situations and particularly when there is a change in total delay time. Therefore the recommended procedure is to: *1)* make actual observations over an extended period of all the activities of all the operators in a homogeneous work center, either by continuous timing or by tally-sampling; *2)* find the total time spent by all operators on each classification of activity and convert this total to a percentage of the total time available for all operators; *3)* select those percentages for legitimate (unavoidable) delays and add to get the total "allowable" delay percentage; *4)* divide this "total allowable delay percentage" by "100 minus the total delay percentage" to determine the "delay factor"; *5)* add 1.00 to the delay factor to obtain the "allowance factor"; and *6)* multiply this allowance factor by the normalized base time of each time study to obtain the "standard time" for the cycle or unit of output.

In some companies, separate "delay studies" are made for each significantly different work center to obtain objective data with which to justify the allowance factors used in the respective work centers. This practice is recommended because, without such proof of validity, allowance factors may be controversial and subject to deterioration by negotiated compromise. Also different kinds of work (or different work centers) may deserve different allowance factors, and equitable differences can be determined only from valid data. Entirely legitimate allowance factors may range from as low as 1.10 to as high as 1.40 or higher, according to the nature and amount of the miscellaneous activities that are unavoidable and, perhaps for convenience, are not included in the normalized base times of the direct operation studies.

Estimated Factors

Many companies, however, neglect the delay studies and, by means of "educated guesses" or guided by published accounts of allowance factors used in other companies, arbitrarily decide what allowance factors to use. These arbitrary decisions seldom clarify whether the selected figure is presumed to be the "delay percentage" (of the available time), or the "delay factor" (for direct use with the normalized base times). Ordinarily, those who use such values actually do not understand the difference; they commonly speak as if 15 percent of the work day is consumed by delays but apply 0.15 as the delay factor or 1.15 as the allowance factor. Brief calculations will show that, if allowable delays consume 15 percent of the day, the delay factor should be 0.177 or that a delay factor of 0.15 allows only 13.1 percent of the day for delays. This difference becomes exaggerated when legitimate delays consume larger portions of the day, and the confusion in application has been the cause of many grievances and costly arbitrations.

The amount of allowance must of course be related to the particular work situation and may be quite different in a poorly organized workshop with erratic work flow than it is in a well-engineered, smooth-running shop.

Reasonably Typical Values

Nevertheless, for long-running orders (large lot sizes) an allowance factor of 1.15 has been well supported by extensive delay studies of manual operations, while a factor of 1.20 is more realistic for manual operations in jobbing shops where shorter custom orders predominate; the most appropriate value will depend upon the particular local conditions. At one large company, a highly respected pioneer in the field of work measurement, a delay factor of 0.15 was applied to each manual (or manually controlled) element within an operation cycle, and a delay factor of 0.10 was applied to each element during which a machine was completely self-operating (as in power-feed) and the operator was idle—merely waiting for the machine element to be completed. However, these figures were not valid in a subsidiary company where the operators were exposed to more "miscellaneous" activities than in the parent company. If operators must sharpen their own cutting tools and perform other minor maintenance or set-up functions, allowance factors higher than 1.20 may well be justified.

Base Time

The heart of a "standard time" consists of the "normalized (base) times" for the motions or elements necessary to perform the operation. These normalized times for a specific operation may be obtained by a direct stop-watch time study of an operator actually performing the operation, or they may be selected from previously established "standard time data" that have been accumulated from statistical analyses of many studies on many operators performing many different operations.

Timing Devices

Very adequate time studies can be made with an ordinary wrist watch or pocket watch that divides time into minutes and seconds, particularly if the second hand sweeps over the entire dial; in fact, such a watch may be preferred for long-period "delay studies," because the "time of day" can be recorded for each occurrence of a change in activity, providing easy verification of the calculated sum of the several activity times with the total elapsed time. However, since mixing minutes and seconds is awkward and conducive to calculation errors, a decimal system is preferable. The ability to start and stop the timing device at specific points in the work cycle also is a great convenience.

Decimal Minute Watch. For general time study work, two types of stop watches commonly are used. The more popular is the "*decimal minute*" watch. One type requires three successive pressures on the stem to start, stop, and return the hands to zero. A more desirable type has a slide on the side of the case; a downward motion stops the watch, an upward motion toward the winding stem starts the hands from the position where they had been stopped, and a pressure on the stem returns the hands to zero. With the slide in running position, a pressure and release of the stem returns the hands to zero and immediately starts them, a technique used in "snap-back" readings.

The large dial of the decimal minute watch has 100 divisions around its edge, each consecutive tenth division being identified with numbers 0 through 9, and each fifth line is slightly longer than the others. A center-mounted sweep hand makes one revolution per minute (60 revolutions per hour) so that each small division over which its tip passes represents 0.01 minute. A small dial (resembling the seconds dial on an ordinary watch) has 30 divisions, numbered in groups of five from 5 to 30, and usually is located in the upper portion of the main dial. The small hand moves one division for each complete revolution of the large hand and thus accumulates a total of 30 minutes. Therefore, the complete watch cycle is 30 minutes. If the duration of a time study exceeds one half hour, the observer must note the number of complete cycles through which the watch has passed. Customarily this is verified by recording the times of day when the study was started and ended.

Decimal minute watches are popular for several reasons: *1)* the employees are familiar with the concept of a minute as a unit of time and quickly comprehend decimal fractions of a minute; *2)* machine speeds and feeds commonly are stated in "feet per minute," "revolutions per minute," "inches per minute," or "strokes per minute"; *3)* expressing short-element averages to three (or occasionally four) decimal places is not particularly burdensome. However, minor disadvantages include: *1)* the speed of the sweep hand is relatively slow—a faster running watch is advantageous for timing very short elements; *2)* minutes generally must be converted to hours for use in payroll calculations and occasionally for indicating the time standard; the two different systems of time units (minutes and hours) may be confused and result in embarrassing errors.

Decimal Hour Watch. Many companies also use the "decimal hour" watch. Its construction and operation are the same as in the decimal minute watch. The only distinguishing feature in appearance is that the numbers on the large dial appear as .01, .02, .03 rather than 1, 2, 3. The appearance of the smaller dial generally is identical with that of the decimal minute watch, and the small hand similiarly accumulates 30 revolutions of the sweep hand. The sweep hand makes 100 revolutions per hour (rather than 60), or 1.667 revolutions per minute, and its tip passes over one division in 0.0001 hours, or 0.006 minutes. One revolution of the small hand requires 0.30 hours, or 18 minutes. (Apparently a few decimal hour watches have been made with 50 divisions on the small dial, to accumulate one half hour, but such watches are rare.) Compared with the decimal minute watch, the decimal hour watch: *1)* runs two-thirds faster, somewhat increasing the ease and accuracy of determining time intervals of very short elements; *2)* involves only one convenient and completely decimal system of time units (hours), requiring no conversion for expressing standards or calculating payrolls; *3)* is less readily understood by employees; *4)* requires a rather burdensome number of "decimal positions" to express the times for short elements; and *5)* requires the use of tables for ready conversion of machine specifications, such as revolutions per minute, to correspond with machine time observations in hours.

Other Timing Devices. For very unusual situations, a watch that runs still faster may be convenient, and *athletic stop watches* calibrated in fifths of seconds occasionally are used, but they are quite uncommon in normal time study work. The potential accuracy of their greater speed partially is offset by the human reaction time to operate them. Where research, or the development of "motion-time" standard data, requires extremely small subdivisions of operation times, the analyst will prefer a *motion picture camera* driven by a carefully calibrated spring motor or by an attached synchronous motor. At the standard "silent" movie speed of 16 frames per second (960 frames per minute), the time interval between adjacent frames is about 0.001 minutes—only one-tenth as long as for the smallest division on the decimal minute watch, and permanent pictures permit deliberate analysis (frame by frame) for precise determination of consecutive times for motions or elements. Faster camera speeds permit smaller divisions of time and more exact end points of motions. With extremely high-speed cameras running at the rate of about 6,000 frames per second, the time per wingstroke of a common housefly has been determined.

The ideal operator to be observed for a time study is one who possesses all normal physical facilities, has had sufficient training and experience to develop the skills ordinarily required for the general class of work, thoroughly understands the nature and purpose of the task, has had sufficient practice on the specific task so that he can perform it repeatedly without hesitations or fumbles or without deviations from the prescribed method, can work for the duration of the study without interruptions or distractions, is conscientious and co-operative, and is not motivated toward superior performance by financial incentives, by seeking favor with the observer, or by other special inducements. If such an ideal operator were available, an average of his over-all times for several cycles should be very close to the "normalized base time" for the operation, and only the normal delay allowances need be added to determine the "normal standard time."

Dividing the Operation into Elements

Unfortunately an ideal operator seldom is available, and the observer must resort to more complex procedures. In a sheltered workshop where some type of impairment is typical and where variations from any norm may range extremely widely, problems will arise beyond those generally found in industry.

Usually the operator actually observed accidentally (rarely purposely) will introduce fumbles, error that must be corrected, or other activities that should not be included in the normal cycle. For convenience in isolating these "foreign elements" and recording them separately either to be discarded or for possible later use, the observer will list (on a special time study form) the separate elements that the operator performs in completing one cycle of the task. These elements preferably should be selected so that: each element has a definite termination that can be recognized by a distinct motion or sound, each element includes only one small activity contributing to the progress of the task, each element will be small enough so that foreign elements are more likely to occur between regular elements rather than within one of them, preferably, the elements will be common to other operations, varying in time but not in kind or purpose, so that similar elements in several studies may be compared or analyzed according to their respective task dimensions for the development of standard time data.

Recording Element Sequences. With a little practice, the process of recording stop-watch readings onto a time study form is relatively easy if the elements of the prescribed method are listed on the form in the proper sequence and if the operator always follows that sequence. The skilled observer should be able to record the readings accurately even if the operator accidentally or purposely alters the sequence. From his recorded observations the observer should be able, later, to reconstruct the altered sequences almost as reliably as if they had been photographed.

Continuous Readings. Preferably with the use of "continuous" watch readings, the watch is started at the beginning of a cycle, for which the watch reading would be zero, and is allowed to run continuously for the duration of the complete study. As the operator completes the consecutive elements, the corresponding watch readings are recorded under the respective descriptions previously listed. Without stopping the watch, this process is continued as the operator repeats several cycles until an adequate sample of the operator's performance has been obtained. The watch may be stopped at the moment of the final element reading. For verification, the times of the day should be recorded for both the beginning and the end of the study.

Number of Cycles. Sophisticated and time-consuming statistical techniques are available for determining the number of cycles necessary to comprise an adequate sample. Very simply, perfect consistency in the times, for any given element for the several cycles, is impossible. The number of observed cycles should be large enough so that the average of the element's times already observed would not be changed significantly by the addition of one more cycle. If an element's times are quite consistent, relatively few cycles are needed to provide an acceptable average. If they are widely variable, more cycles are needed. Power-feed machine elements should be almost perfectly consistent; their times can be calculated from specifications and the principal advantage in observing their times is to check for proper machine settings. Manual elements are far less consistent and the shorter the element, the wider will be the variations. For total operation cycle times of one or two minutes, 10 to 20 cycles should give a minimum acceptable sample.

Need for Adjustment in Observed Times

The person who may be available for the study seldom will meet all the qualifications listed for the ideal operator and the average of his demonstrated times is likely to deviate considerably from the desired "normal." He may be unskilled, unfamiliar with the task, or poorly motivated, and poor performance yields excessively long times; he may be exceptionally well skilled and highly motivated so that his superior performance yields very short times that a "normal" operator could not meet. Statistical analyses can determine central tendencies (averages) and the extent of variation (inconsistency), but they cannot determine how far the calculated average of actual observations deviates from the observer's subjective concept of "normal." Admittedly, the concept of "normal" exists only as the observer's opinion and is neither precise nor stable, but his good judgment tells him that the poor performance causes the observed times to be too long and the superior performance causes them to be too short for realistic standards. Accordingly he must adjust the averages of the actual times to more realistic values.

The Leveling Procedure. The adjustment process is a "leveling" procedure since its purpose is to adjust actual times to what they would have been if all varying performances had been at the "normal level." Many different techniques have been promoted (along with attendant controversies) to aid the observer in assigning a numerical value to his opinion of the demonstrated level of performance. A list of these techniques would include: normalizing; rating; performance rating; speed rating; pace rating; coding; and objective rating. Each is claimed by its proponents to be superior to other techniques, but, as in "merit rating," they vary from one another primarily in the number of separate intangible (and sometimes vague or overlapping) performance characteristics to be evaluated such as skill, effort, speed, working conditions, consistency, rhythm, or (as in one) the "attitude of the operator toward the observer." One system recommends projecting movies near the work station so the observer can compare the operator's actual motion speed with calibrated speeds of some simple motion of an individual member of the body; since effort demand is evaluated by several attributes used in job evaluation, overlapping factors already considered in the hourly base rate are involved.

Any system of leveling depends upon the judgment of the observer. As he compares the demonstrated performance with his mental image of "normal performance," he makes an estimate of the ratio of deviation. If he considered the actual performance to be near the "incentive" level, his estimate probably would be about 1.25, which, applied to the low observed times, would raise them to about the equivalent of "normal" times. Conversely if he considered the actual performance to be rather poor, he might apply a leveling factor of, say, 0.80 to reduce the longer observed times to his concept of "normal" times. A leveling factor of 1.00 would be associated with an actual performance already considered to be at the normal level.

Leveling Imperfect but Necessary. Since the leveling factors are only estimates, they are subject to judgment errors; therefore they serve to adjust the actual times usually in the right direction and hopefully but not necessarily by the right amount. With such uncertainty, any use of leveling factors may seem unjustified, but they serve two important purposes: *1)* they promote consistency in time standards by reducing wide ranges of actual times to narrow ranges of leveled or normalized times; *2)* they provide a means of adjusting times obtained from extreme performances to the times that probably would have been obtained if the performances had been "normal" (this frequently is necessary because the only operator assigned to the specific task may not perform at the "normal" pace and the observer usually has no other choice).

Because leveled times from several time studies (of identical tasks) still will vary over some (narrowed) range, the most acceptable value would be the average of the several normalized times. These averages, for the many different tasks that occur in industry, can be obtained by sophisticated statistical analysis and the development of "standard time data" from which standard elemental (or motion) times may be selected to "synthesize" task standards.

Range of Leveled Time. Overconfident time study observers often claim the ability to estimate rates of performance so that the leveled times always will be with a range of 5 percent, but, under pressure, they admit that they probably mean plus or minus 5 percent from the mean of the leveled times, or a total range of 10 percent. Extensive controlled tests indicate that only the most expert observers (relatively few) are capable of achieving leveled times within as small an error as plus or minus 5 percent on only two-thirds of their trials. (This is equivalent to a "standard deviation" of plus or minus 5 percent from the mean.) To include 95 percent of their trials (two standard deviations), the error becomes plus or minus 10 percent, or a total range of 20 percent. For the large majority of observers, the ranges of errors are about double the above amounts, or 20 percent and 40 percent. A difference of 40 percent (or even of 20 percent) between two time standards for tasks that seem identical to the operator is readily apparent to him and is a likely source of grievance.

Yet, with all the difficulties in performance leveling, it remains an essential part of the time study procedure. The leveling factor always should be estimated and recorded for the time study while the observer actually is watching the operator and is most able to make a fair evaluation of the demonstrated performance.

Complete Identification

For future reference, a time study is of little value unless the task is well identified. Before leaving the work station the observer should record all possible identifying data, including such items as: name and part number of the item on which the operation is performed; name of the operation; name, clock number, and sex of the operator; the date and time of day of the study; location of study; a dimensioned sketch of the part or assembly, the work station layout, or both; weights of various articles or other identification from which weights (and perhaps densities) can be calculated; distances reached and moved; identification of machines, fixtures, cutting tools, or hand tools; machine speeds and feeds; working conditions such as proportions of the cycle during which the operator sits or stands, temperature in degrees, lighting (including foot-candles if possible), indications of humidity if extremes significantly affect materials or equipment, height of work place, as well as seating or other facilities that significantly affect the comfort of the operator; and other special information that may be pertinent to the local situation.

Posting the Watch Readings

As each element of the operation is terminated, the watch reading (R) is posted for that element to the nearest 0.01 minute—to the nearest line of those separating the 100 divisions of the dial. Attempts to read the location of the sweep hand "within" the smallest unit on the dial are unrealistic and provide only a false sense of accuracy. Since the smallest realistic unit is 0.01 minute, all posted watch readings are assumed to include two decimal positions although, for speed and convenience of posting, the decimal point may be omitted from the posted readings. With short elements, several two-digit readings may be posted within one minute, but, when the sweep hand has made a complete revolution and the small hand has moved into the next whole-minute division, the next posting should show the whole-minute reading of the small hand as well as the hundredths-minute reading of the sweep hand by using three-digit or four-digit numbers as needed.

The *time interval* (T) for each element is the difference between the reading (R) for the termination of that element and the reading for the termination of the next previous element. Consecutively subtracting each reading from the next throughout the study will yield the time intervals (T) for the successive elements of the study. Since many of these intervals will be less than 0.10 minutes, only one digit need be shown and the decimal point may be omitted, but the single digit is assumed to be in the second decimal position. No decimals are necessary in the watch readings or in the time intervals obtained by the consecutive subtractions, but, to avoid decimal errors in calculations or interpretations, great care should be exercised to show the decimal point properly located in all further steps of writing up the study.

Abnormal Values. For each element, the subtracted time intervals (T) should be examined for consistency. Extreme variations might indicate errors in subtraction or possibly in the watch readings, which should be found and corrected; if not due to such calculation errors, they should be analyzed carefully to determine if improvements in job layout or methods can eliminate the cause of the variations. An abnormally small value probably indicates a watch reading error that usually can be discovered by reviewing a few prior and subsequent readings, but the time should be discarded since it could indicate that the element was not completely performed. An abnormally large (T) may have been caused by hesitations or fumbles that would not occur with normal performance and therefore may be discarded. If a large (T) were caused by uncontrollable difficulties, the frequency and extent of the difficulties should be investigated and a reasonable apportioned amount should be retained in the calculations. Since hesitations, fumbles, difficulties, and interruptions (too small to record separately as foreign elements) always increase the times for elements in which they occur, there generally will be more abnormally high than abnormally low times that justifiably may be discarded. One reason for discarding abnormal times is to eliminate the effects of activities that might have occurred during the study but would not occur with normal performance under ordinary working conditions. Another purpose is to retain only those remaining values of (T) that would yield approximately a "statistically normal" or at least a symmetrical distribution, containing no effects of "assignable causes."

Average Actual Time. The retained values of (T) are added, and the sum divided by the number of values added to obtain the mean or the arithmetic average actual time for the element. Since an average, multiplied by the number of values, should reproduce the sum, these element averages, as well as subsequent calculations for the study, should be calculated with the equivalent of sliderule accuracy regardless of the number of decimal positions involved.

Normalized Base Time. Though other techniques are occasionally used, the "leveling" (rating) factor usually is applied to all elemental average times. Often the same leveling factor is applied to all elements — a single factor is applied to the whole study, though calculations are shown for the separate elements. However, if the observer considers that certain elements were performed at different levels of performance, different factors may be applied to those particular elements. Each element's "average" actual time is multiplied by the appropriate leveling factor to obtain its normalized or "base time."

Occurrences per Unit. As thus far described, the elemental base time is the normal time for "one occurrence" of the element, but the element may be required once on every counted unit of output, several times on each unit, or only once for each 5 or 10 or other number of units completed. Therefore, each elemental base time must be "multiplied" by the number of occurrences per unit of product. If the element is required on every unit, the "occurrences per unit" is 1 and the elemental base time becomes the "base time per unit." If, say, 8 identical screws are used in one assembled unit, customary practice would be to average all the screws together and find the base time for the element "assemble one screw," which then would be multiplied by the "occurrences per unit" (or 8) to obtain the "base time per unit." Or again, assume that an assembly requires two identical parts, which are delivered to the work station in "tote pans" with each pan always containing 10 of these parts. The operator must "exchange pans" whenever one supply pan becomes empty and a new supply is needed. Along with the other elements of the assembly, the time study will include the element "exchange pans" for which a base time per occurrence will be determined. In this situation, the "occurrences per unit" should be expressed as a common fraction; the numerator is the number of the parts (2) used on each completed assembly; the denominator is the number of parts consumed (10) for each occurrence of the element; and the multiplier should be shown as "2/10," which reveals the actual conditions under which the element is used. This multiplier should not be shown as a numerical equivalent, such as "1/5" or "0.2," which would not show conditions of application.

Standard Time per Unit

The sum of the elemental "base times per unit" is the total base time that should be required by the ideal normal operator to perform the operation on each unit of the completed product without external interruptions or personally imposed delays. This base time must be increased by one unit's proportional share of the long-run average amount of the unavoidable miscellaneous activities and delays. This proportional share (expressed in minutes) is equal to the base minutes multiplied by the "delay factor," and the sum of base minutes plus the proportional delay minutes is the "standard minutes per unit," which normal performance would maintain over long periods including the normal delays. Knowledge of the "proportional delay minutes" is of no value, except perhaps as incidental detail when time standards initially are explained to employees, and the standard time can be obtained directly by a single multiplication of the base time by the "allowance factor."

The "*net over-all time per unit*" provides an approximate but quick verification of the "total base time per unit." It is simply the over-all time of the complete study minus the sum of the foreign elements observed during the study, this difference divided by the number of units completed during the time study; occasionally minor adjustments are required to give proportional credit for units only partially completed. The "net over-all time per unit" serves at least two useful purposes. As soon as the observations have been completed, the operator may ask what the time standard will be, but a valid answer cannot be given until after the subtractions and other calculations have been made. The observer very quickly can calculate the net over-all time per unit and tell the operator what his average demonstrated time actually was, without making a commitment on what the final standard will be. Secondly, calculation errors sometimes do occur both in arithmetic and especially in decimal point locations. Although the "net over-all time per unit" seldom will agree precisely with the calculated "base time per unit," nevertheless a great difference is an immediate warning to the analyst that he probably has made one or more errors that he should find and correct before "issuing" the standard.

Expressing the Standards

Work standards are "issued" to the "shop" according to the convenience or custom in the local plant: minutes per unit; minutes per 100 or per 1,000 units; hours per unit; hours per 100 or per 1,000 units; "standard" units per hour; "task" units per hour; etc. Although time studies may be made with a decimal-minute watch, "time" standards commonly are issued in hours per unit, or 100 or 1,000 units, while "production" (or output) standards are issued in terms of units per hour. The simple relationships are expressed in the following equations.

(*a*) Hours per unit = (Minutes per unit)/60

(*b*) Hours per 100 units = Hrs./C = 100 x (Minutes per unit)/60

(*c*) Hours per 1,000 units = Hrs./M = 1,000 x (Minutes per unit)/60

(*d*) "Standard" units per hour = 60/(Standard minutes per unit)

(*e*) "Task" units per hour = 60/(Base minutes per unit)

Multiplying standard hours per unit by the number of units of output gives the total standard hours produced, which in turn may be multiplied by the hourly base rate to determine earned wages. Total units of output divided by the standard units per hour also gives the total standard hours produced.

Time Study Observation Forms

Designs of time study forms vary from simple cross-section paper to elaborate 11″ x 17″ sheets printed on both sides. The purposes of the form include: to standardize the routine for all observers within the company; to provide uniform location and convenient spaces for recording information and making calculations; and to remind the observer of the items of information he should obtain.

The time study form illustrated herein includes features selected from about 50 different company forms, plus at least two important features not found on any other form: *1)* the provision for conveniently classifying manual activities on semiautomatic machine operations; and *2)* the clear association of the special tools, feeds, speeds, dimensions, and tolerances with the respective elements to which they apply. The first of these two "plus" features is particularly important when planning and setting standards for multiple-machine attention by the operator,

An Assembly Study

The time study exhibits (1-A and 1-B) on the "Assembly of the Double Gear Unit" (study no. 1, dated 8-9-63) (See pages 82-83) illustrate a study of simple assembly, a base "frame" (a machined casting) to which are assembled two meshing "gears" mounted separately on two "pins" (bolts), which in turn are inserted through holes in the frame and secured by two "nuts." For this illustration, the nuts are turned "finger-snug," so that no hand tools are needed. The two exhibits show the two sides of a single time study sheet; the "observation" side (1-A) has the slanting headings along the top in which are brief identifications of the consecutive elements; the "write-up" side (1-B) shows a simple sketch of the assembly in the lower right corner.

By watching the operator make a few assemblies, the observer determined where specific sounds or movements indicated the "end points" of logical subdivisions of the operation, listed the elements in their most practical sequence, and numbered the elements immediately below their descriptions. Just as the operator set aside a finished assembly, the stop watch was started from zero. As each listed element was completed, the watch reading (R) was posted, progressing generally from left to right on horizontal line (1) for the first whole cycle, then using line (2) for the next cycle, and so on. As both gears were alike, as were both pins and both nuts, elements 2b, 3b, and 4b were considered identical to 2a, 3a, and 4a, and were listed as "repeats" so that each pair of columns would be combined to obtain only one average time for each element.

The smaller numerals (under R) are the watch readings, which were posted during the study; the larger numerals (T) are the subtracted time intervals, which were inserted after the observations had been completed and the observer had left the work station.

This exhibit is not quite typical, because most operators will follow the prescribed element sequence throughout the study; but it does illustrate how to handle altered sequences. Line (1) shows a cycle in which the elements were performed in the prescribed sequence; the readings progress from left to right, then downward to start the next cycle, in the same manner as words are arranged in a book. To avoid subtraction errors, this pattern (across, or down) should be followed consistently although downward subtractions initially may seem unfamiliar.

Line (2) shows an alternate feasible sequence in which both pin-and-gear sets were mounted to the frame be-

STUDY NO. 1
DATE 8-9-63
SHEET NO. 1
OF 1 SHEETS
STUDY STARTED 9:03
STUDY ENDED 9:11
ELAPSED TIME HRS MIN 8

STYLE OR PART NO. M 731-A1
OPERATION NO. 1
PART NAME Double Gear Unit
OPERATION Assemble

CYCLE OR LINE NUMBER	Element description
1	Get frame (LH) and place in position, (RH) idle.
2a	Pick up pin (LH) and gear (RH), assemble 1st pin to gear
3a	(LH) carry pin and gear, assemble to frame, (RH) reach and hold frame
4a	(LH) hold partial assembly, (RH) get 1st nut and assemble to pin
2b	Repeat 2a for second pin and gear
3b	Repeat 3a
4b	Repeat 4a for second nut
5	(RH) set finished unit aside, (LH) idle

ELEMENT NO.	1		2a		3a		4a		2b		3b		4b		5	
	T	R	T	R	T	R	T	R	T	R	T	R	T	P	T	R
1	4	00 04	5	09	6	15	8	23	5	28	6	34	8	42	5	47
2	5	52	6	58	6	64	9	74 83	5	64 69	5	74	8	83 91	6	97
3	4	101	4	05	~~11~~	16	7	28 35	6	16 22	6	28	9	35 44	4	46
4	5	48 53	5	58	5	63	8	77 85	7	63 70	7	77	8	85 93	5	98
5	4	202	6	208	A 7	520	8	28	5	33	6	39	~~12~~	51	4	55
6	5	60	5	65	6	571	E 9	592	5	97	7	604	8	12	6	18
7	6	24 ↓	~~10~~	28 38	5	43	8	74 82 ↓	4	43 47	5	52	②		②	
8	4	28	5	52 57	6	63	7	89	6	63 69	5	74	13	89 702	8	710
9	5	15	6	21	5	26	8	34	4	38	6	44	8	52	5	157 //
10																
11			42	/8	46	/9	72	/9	47	/9	53	/9	62	/9		
12			+ 47	/9	+ 53	/9	+ 62	/8								
13																
14																
TOTALS T.	.42		.89		.99		1.34								.43	
NO. OF VALUES USED	9		17		17		17								9	
AVERAGE (SELECTED) T	.0467		.0523		.0582		.0788								.0478	
RATING	C2, C1, D, C															
TOTAL RATING FACTOR	1.09															
ELEM. BASE TIME	.0509		.0570		.0635		.0860								.0521	
OCCURR. PER UNIT	1		2		2		2								1	
BASE TIME PER UNIT	.0509		.1140		.1270		.1720								.0521	

DESCRIPTION	RATING	SKILL	SPEED
Maximum	A1	+.15	+.13
	A2	+.13	+.12
Excellent	B1	+.11	+.10
	B2	+.08	+.08
Good	C1	+.06	+.05
	C2	+.03	+.02
Standard	D	00	00
Fair	E1	-.05	-.04
	E2	-.10	-.08
Poor	F1	-.16	-.12
	F2	-.22	-.17
Very Poor	G1		
	G2		

DESCRIPTION	RATING	CONDITIONS	RHYTHM
Ideal	A	+.06	+.04
Excellent	B	+.04	+.03
Good	C	+.02	+.01
Standard	D	00	00
Fair	E	-.03	-.02
Poor	F	-.07	-.04
RATING FACTOR			

FOREIGN ELEMENTS

SYM	R	T	DESCRIPTION
A	208 513	3.05	Personal delay
B	576 588	.12	Dropped nut
C		3.17	Total
D			
E			
F			
G			EXHIBIT 1-A
H			
J			
K			
L			
M			
N			
P			

OPERATOR'S NAME Joe Brown
OPERATOR'S NO. 238 M (X) F ( )
OBSERVER H.B. R.
APPROVED:

Designed by H. B. Rogers. 7-8 44. Revised 7-28 47
1944 NORTHWESTERN UNIVERSITY

USS 1144-25M

TIME STUDY OBSERVATION SHEET EXHIBIT 1-B

STUDY NO. 1
DATE 8-9-63
DEPT. OR LOCATION C11
DWG. NO. M 731
DWG. SUB OR ISSUE 2
PART OR STYLE NO. M 731-A1
OP. NO. 1

OPERATION Assemble
PART NAME Double Gear Unit
MATERIALS USED Finished Parts
NAME OF MACHINE Bench
MACHINE SIZE OR TYPE
PLANT MACH. NO.

ELEMENT NO.	BASE TIME PER UNIT: MANUAL ELEM. OR MACHINE LOADING (1)	BASE TIME PER UNIT: MANUAL ELEM. DURING AUTOMATIC MACHINE FEED (2)	BASE TIME PER UNIT: OPERATOR IDLE DURING AUTOMATIC MACHINE FEED (3)	BASE TIME PER UNIT: TOTAL AUTOMATIC MACHINE FEED (4)	TOOL NAMES: DRILLS, BITS, CUTTERS, JIGS, FIXTURES, MOLDS, PATTERNS, DIES, HAND TOOLS, ETC.	TOOL NO.	TOOL MATERIAL	SPEEDS: F.P.M.	SPEEDS: R.P.M. S.P.M.	FEEDS: Inches Per R. or S.	FEEDS: Inches Per Min.	MACHINED DIMENSIONS: DIA. OR WIDTH	MACHINED DIMENSIONS: DEPTH	MACHINED DIMENSIONS: LENGTH	FINISH SPECIFICATION	TOLERANCES: MAX.	TOLERANCES: MIN.
1	.0509																
2	.1140																
3	.1270																
4	.1720																
5	.0521																

(A)	.5160	TOTAL BASE T.
(B)	.15	ALLOWANCE FACTOR
(C)	.0773	ALLOWANCE TIME
(D)	.5933	STANDARD TIME
(E)	Use .593	TOTAL STD TIME/UNIT
(F)	100	% OF CYCLE
(G)	101	STD. UNITS PER HOUR
(H)		$ HRLY BASE RATE
(J)		STRAIGHT PIECE RATE
(K)		$ HRLY PREM. RATE
(L)	116	TASK: UNITS PER HOUR
(M)		PREM. PIECE RATE

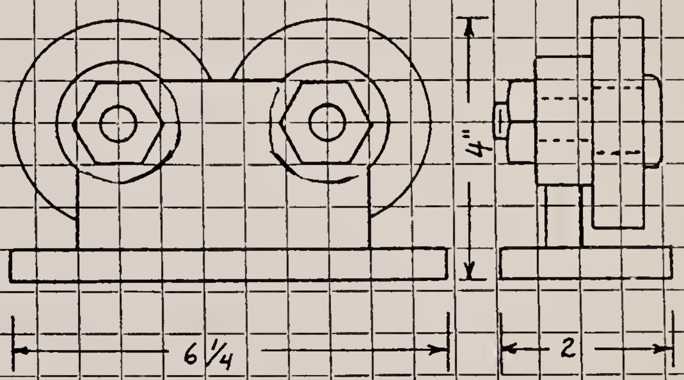
(N) NET OVERALL TIME, PER UNIT OR CYCLE:

$$\frac{7.57-3.17}{9} = \frac{4.40}{9} = .490$$

CONDITIONS:
SIT 100 %: STAND ____ %: TEMP. 70 DEGREES
LIGHTING: Excellent
HEIGHT OF WORK-CENTER ABOVE FLOOR: 36" Used stool
TOOL COOLANT:

SKETCH: PART, TOOLS, OR WORK AREA

H.B.R.



REMARKS: This method includes much idle or holding time, with unbalanced hand motions. Perhaps two units could be assembled with duplicate symmetrical motions

STUDY NO. R 76
DATE 8-13-63
SHEET NO. 1
OF 1 SHEETS
STUDY STARTED 10:00 a.m.
STUDY ENDED 10:35 a.m.
ELAPSED TIME HRS MIN 35

STYLE OR PART NO. M 4311-2
OPERATION NO. 50
PART NAME Collar
OPERATION Drill, Counterbore, Ream

CYCLE OR LINE NUMBER

1. Pick up new casting, place into fixture, tighten 2 screw clamps
2. Lower spindle and engage feed
3. Drill one hole 1½" Dia. 4½" deep Power feed
4. Raise spindle, remove drill, quick-change chuck to counterbore, change speed.
5. Lower spindle, Engage feed
6. Counterbore 1 21/32 Dia. 1" deep. Power feed
7. Raise spindle, remove Cntrbr. chuck reamer. Change speed.
8. Lower spindle
9. Hand-feed reamer through drilled hole 1½ Dia. 3½ deep
10. Raise spindle, remove reamer, chuck drill. change speed
11. Loosen 2 clamps, remove casting from jig and set aside to box 3 ft. away
12. Drill dull. Get new drill from tool room. Allow once/100 pcs.
13. Get new box of 25 castings.

ELEMENT NO.	1 T	1 R	2 T	2 R	3 T	3 R	4 T	4 R	5 T	5 R	6 T	6 R	7 T	7 R	8 T	8 R	9 T	9 R	10 T	10 R	11 T	11 R	12 T	12 R	13 T	13 R
1	18	00 18	6	24	150	174	9	83	4	87	36	223	5	28	6	34	27	61	7	68	12	80				
2	20	300	7	307	149	456	7	63	7	70	37	507	7	14	5	19	28	47	7	54	13	67				
3	19	86	11	497	151	648	6	54	6	60	35	95	6	701	5	06	35	41	6	47	~~16~~	63				
4	~~30~~	93	7	800	150	950	7	57	5	62	38	1000	5	05	5	10	26	36	~~25~~	61	14	1075	629	1704		
5	20	24	6	1730	150	1880	~~13~~	93	5	98	36	1934	6	40	6	46	28	74	7	81	13	94				
6	21	2015	6	21	149	2170	8	78	4	82	36	2218		M		28	27	55	6	61	12	73				
7	18	91	7	2298	150	2448	6	54	7	61	37	98	7	2505	5	10	26	36	7	43	12	55				
8	22	77	5	2582	150	2732	7	39	5	44	35	79	7	86	4	90	27	2817	6	23	13	36				
9	19	55	7	2862	151	3013	6	19	5	24	36	3060	A ~~13~~	148	5	53	27	80	6	86	12	198				
10	20	218	6	24	152	376	7	83	6	89	37	426	7	33	5	38	28	66	7	73	12	3485			53	3538
11																										
12																										
13																										
14																										
TOTALS T.	1.77		.57		15.02		.63		.54		3.63		.50		.46		2.79		.59		1.13		6.29		.53	
NO. OF VALUES USED	9		9		10		9		10		10		8		9		10		9		9		1		1	
AVERAGE (SELECTED) T	.197		.063		1.502		.070		.054		.363		.063		.051		.279		.066		.126		6.29		.53	
RATING					DDDD																					
TOTAL RATING FACTOR	.95		.95		1.00		.95		.93		1.00		.95		.95		1.05		.95		.95		.90		.95	
ELEM. BASE TIME	.187		.060		1.502		.067		.050		.363		.060		.048		.314		.063		.120		5.660		.500	
OCCURR. PER UNIT	1		1		1		1		1		1		1		1		1		1		1		1/100		1/25	
BASE TIME PER UNIT	.187		.060		1.502		.067		.050		.363		.060		.048		.314		.063		.120		.057		.020	

DESCRIPTION	RATING	SKILL	SPEED
Maximum	A1		
	A2		
Excellent	B1		
	B2		
Good	C1		
	C2		
Standard	D		X
Fair	E1	X	
	E2		
Poor	F1		
	F2		
Very Poor	G1		
	G2		

DESCRIPTION	RATING	CONDITIONS	RHYTHM
Ideal	A		
Excellent	B		
Good	C		
Standard	D	X	X
Fair	E		
Poor	F		
RATING FACTOR			

FOREIGN ELEMENTS

SYM	R	T	DESCRIPTION
A	3065 3140	.75	Talk to Supervisor
B			
C			
D			
E			
F			EXHIBIT 2-A
G			
H			
J			
K			
L			
M			
N			
P			

OPERATOR'S NAME Bill Jones
OPERATOR'S NO. C-350 M (X) F ( )
OBSERVER H.B.R.
APPROVED:

Designed by H. B. Rogers. 7-8-44. Revised 7-28-47

UBS 1144–25M

1944 NORTHWESTERN UNIVERSITY

TIME STUDY OBSERVATION SHEET

EXHIBIT 2-B

STUDY NO.	R 76	DATE	8-13-63	DEPT. OR LOCATION	C 10	DWG. NO.	M 4311	DWG. SUB OR ISSUE	3	PART OR STYLE NO.	M 4311 - 2

OP. NO. 50

OPERATION: Drill, Counterbore, Ream

PART NAME: Collar

MATERIALS USED: Medium Steel Casting

NAME OF MACHINE: Baker Drill

MACHINE SIZE OR TYPE: 314

PLANT MACH. NO.: 311

ELEMENT NO.	BASE TIME PER UNIT: MANUAL ELEM. OR MACHINE LOADING (1)	MANUAL ELEM. DURING AUTOMATIC MACHINE FEED (2)	OPERATOR IDLE DURING AUTOMATIC MACHINE FEED (3)	TOTAL AUTOMATIC MACHINE FEED (4)	TOOL NAMES: DRILLS, BITS, CUTTERS, JIGS, FIXTURES, MOLDS, PATTERNS, DIES, HAND TOOLS, ETC.	TOOL NO.	TOOL MATERIAL	SPEEDS: F.P.M.	SPEEDS: R.P.M. S.P.M.	FEEDS: Inches Per R. or S.	FEEDS: Inches Per Min.	MACHINED DIMENSIONS: DIA. OR WIDTH	MACHINED DIMENSIONS: DEPTH	MACHINED DIMENSIONS: LENGTH	FINISH SPECIFICATION	TOLERANCES: MAX.	TOLERANCES: MIN.
1	.187																
2	.060																
3			1,502	1.502	Drill		H.S.S.	79	200	.015		$1\frac{1}{2}$	$4\frac{1}{2}$				
4	.067																
5	.050																
6			.363	.363	Counterbore		H.S.S.	80	185	.015		$1\frac{21}{32}$	1				
7	.060																
8	.048																
9	.314				Reamer		H.S.S.	39.5	100	Hand		$1\frac{1}{2}$	$3\frac{1}{2}$			+.001	-.001
10	.063																
11	.120																
12	.057																
13		.020															

	(1)	(2)	(3)	(4)	
(A)	1.026	.020	1.865	1.865	TOTAL BASE T.
(B)	1.15		1.10		ALLOWANCE FACTOR
(C)					ALLOWANCE TIME
(D)	1.180	—	2.052		STANDARD TIME
(E)	3.232				TOTAL STD TIME/UNIT
(F)	37		63		% OF CYCLE
(G)	18.6				STD. UNITS PER HOUR
(H)	$ 1.80				$ HRLY BASE RATE
(J)	$ .097				STRAIGHT PIECE RATE
(K)					$ HRLY PREM. RATE
(L)	20.7				TASK: UNITS PER HOUR
(M)					PREM. PIECE RATE

(N) NET OVERALL TIME, PER UNIT OR CYCLE:

$$\frac{35.38-.75}{10} = \frac{34.63}{10} = 3.463$$

CONDITIONS: SIT ____ %: STAND 100 %: TEMP 75 DEGREES

LIGHTING: Good

HEIGHT OF WORK—CENTER ABOVE FLOOR: Drill table 36"

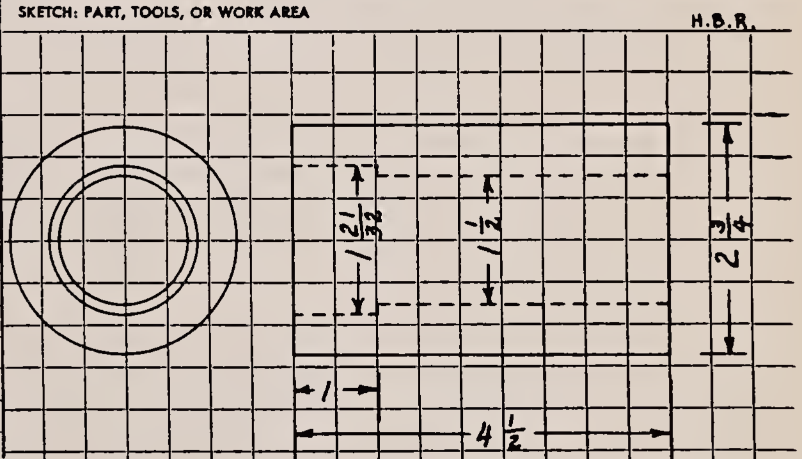
TOOL COOLANT: Soluble oil pumped to all tools

Average tool life:

Drill	= 100 pcs.
Cntrbr.	= 500 "
Reamer	= 500 "

SKETCH: PART, TOOLS, OR WORK AREA

H.B.R.



REMARKS: Item (N) appears high, includes trip to tool room. Deducting 6.29 for trip, it becomes 2,834 Minutes

If operator must run more than one machine, element 13 must be considered to determine possible "interference" with other machines.

fore either nut was assembled. Element (3a) ended with a reading of "64"; but an ending reading for one element necessarily is the beginning reading for whatever the next element may be. Therefore "64" immediately is posted in the upper portion of the (R) space for the next actual element (2b) and "69" is posted when (2b) ends. The next element (3b) follows and is immediately to the right of element (2b); thus "69" is known to be the beginning of (3b), which ends at "74" without posting "69" again under (3b). But "74" also is the beginning time of (4a) and must be so indicated by posting it in the upper portion of the (R) space for (4a). Element (4a) ends at "83" and this value immediately is posted as the beginning time of (4b), which ends at "91." The final element (5) obviously begins at "91" and the cycle ends at "97," which is the beginning reading of element (1) of the third cycle. When first tried, this practice of posting the same reading twice—as the ending time of one element and the beginning time of another—seems complex, and inexperienced observers are tempted to neglect it; they quickly discover the convenience and necessity of the "double readings" when elements are performed in any sequence other than that already listed on the time study form.

The third cycle, line (3), differs from the second cycle only in that, for element (3a), the time interval "11" differs so much from the other (T) values that it is considered abnormal and therefore discarded by drawing a line through it but not obliterating it.

Line (4) also is similar to the two previous cycles but shows that the ending reading "48" of element (5) may be shown, if desired, as the beginning reading of element (1), which ends at "53."

On line (5) the regular elements are performed in the planned sequence but a "foreign element" began at "208," when (2a) ended, and terminated at "513" for a "personal delay" of 3.05 minutes. The foreign element began when (2a) ended at "208," so the observer did two things: he posted the "208" in the upper "R" position for foreign element "A" and placed the letter "A" in the upper part of the (T) space of the "next regular element" (3a). The reading "513" was posted as the ending reading of foreign element (A), then "520" was posted as the end reading for (3a). Subtracting "513" from "520" leaves the time interval of "7" as shown. The letter "A" in column (3a) reminds the analyst to refer to the foreign element for the reading "513" to subtract from "520." A possible alternate procedure would be to omit the letter "A" from the (T) space of (3a) and, instead, post "513" in the upper portion of the (R) space for element (3a). This is an example of a foreign element occurring "between" the two regular elements (2a) and (3a). For element (4b), the (T) time interval of "12" was considered abnormally high and discarded.

On line (6) a foreign element (B) occurred "within" the regular element (4a). Element (3a) ended at "571" and the operator started on the regular element (4a), but foreign element (B) started at "576" when the operator dropped the nut and ended at "588" when he had progressed to the "same point of accomplishment" in (4a) that he previously had achieved before dropping the nut.

Lines (7) and (8) must be considered together and they reflect a further departure from the prescribed routine. The element sequence can be followed readily by noting the progression of time as indicated by the consecutive watch readings. Two frames successively were placed in position, the first with an ending time of "24" and the second with an ending time of "28." Two gears and pins were mounted to the first frame with elements (2a) and (3a), then (2b) and (3b); two gears and pins were mounted to the second frame in the same manner. Element (4a) shows that one nut was assembled to the first frame with an ending time of "82," and then another nut to the second frame with an ending time of "89." Line (8) implies that element (4b) was accomplished simultaneously on both units by using both hands to assemble the two remaining nuts. The description of (4b) indicates that the element normally involves assembling only *one* nut and that a separate watch reading would be posted for each nut, but separate readings become impossible if the nuts are not assembled individually. Whenever an element time involves a "quantity that differs" from the quantity implied in the element description, this different quantity must be indicated; for this illustration it is shown by the small figure "2" within a circle. The operator also could have assembled the two nuts individually and consecutively, but the observer may have missed the reading for the first one and accumulated the time for both. With either possibility, the time interval "13" represents the total time for two nuts; as such, it is not particularly "out of line" with the other retained values in the column and therefore is not discarded. On line (8) the postings for element (5) similarly imply that the two finished units were set aside by the simultaneous use of both hands, and the time interval "8" is retained as the total time for disposing of two assemblies. Unusual sequences should not be ignored; they may be accidental clues to improved methods.

Line (9) represents a normal cycle with all elements performed in the proper sequence. The double line under "757" indicates the final watch reading of the observations, to be used later in calculating the "net over-all time per unit" on the "write-up" side of the time study sheet.

Line (11) was used as a convenient place to show the totals (T), and the numbers of values used, in the columns that previously had been considered desirable to combine. Line (12) suggests the respective combinations.

Rating Table. At the extreme left end of the "observation" page is a rating table similar to one long used at Westinghouse Electric Corporation to guide observers in estimating "leveling factors," but for the experienced observer, a single over-all estimate of performance probably will be as "accurate" as the combination of separate estimates on four intangible factors. In fact, the use of such a table may give a false impression of accuracy and consistency that seldom can be justified by actual performance (of the observer) under controlled test conditions. For those who may wish to use the table as a guide, the recommended method consists of: *1)* considering each of the four factors separately; *2)* appraising the operator's performance in terms of the "adjectives" shown in the table; *3)* posting the corresponding "letters" on the "rating" line near the bottom of the observation page; *4)* finding the algebraic sum of the numerical equivalents of the posted letters, recognizing the plus and minus signs; then *5)* adding 1.00 to the algebraic sum to determine the total "leveling factor."

The calculations at the bottom of the "observation page" should be self-explanatory.

The "*write-up*" page describes the working conditions and duplicates some data appearing on the observation page, so that pertinent identification is visible whichever side of the sheet is forward in the files. At the left end, the "element numbers" are listed, along with the respective "base time per unit" values from the opposite page. The sum of these values is posted on line (A) as the total base time per unit. Either the "delay factor" or the "allowance factor" for the work center is posted on line (B). If the "delay factor" is used, it is multiplied by the total base time; this allowance time is posted on line (C) and then added to line (A) to obtain the standard time for line (D). If the "allowance factor" is used, it is multiplied by the total base time, directly obtaining the standard time for line (D).

Columns (2), (3), and (4) are available for isolating machine times when calculating standards for certain multiple machine assignments. Since this operation includes no machine elements, manual elements constitute 100 percent of the cycle as shown on line (F). Dividing 60 by the "standard" minutes per unit gives the equivalent of 101 standard units per hour as shown on line (G). Dividing 60 by the total "base" minutes per unit gives the "task" units per hour that the "normal" operator should produce during uninterrupted short test runs in order to meet the standards (or to attain 100 percent efficiency) on an all-day basis. The "task" quantity is shown on line (L). Lines (H), (J), (K), and (M) are available for use with special types of piecerate wage incentive plans. Line (N) includes the calculations for the "net over-all time per unit," which previously has been discussed.

Annual Average Number of Employees (Clients) and Number of Workshop Production* Staff

Workshop Code Letter	Average Number of Clients	Staff Members						
		Total	Director	Salesmen Full Time	Salesmen Part Time	Supervisors	Clerical Secretarial Bookkeeping	Other
C	150	12	1			10	1	
FF	131	7	1			5	1	
R	106	8	1			5	1	1**
T	90	7	1			5	1	
D	85	8	1	1		6		
F	84	9	1			7	1	
EE	77	9	1			7	1	
N	70	8	1	1		6		
S	66	7	1	1		4	1	
JJ	60	6	1			3	1	1**
AA	54	7	1		1	4	1	
X	51	5	1	1		2	1	
J	50	6	1		1	3	1	
A	50	5	1		1	2	1	
Z	48	3	1			2		
DD	45	5	1			4		
B	39	4	1	1		1	1	
Q	38	2	1			1		
GG	35	6	1	1		3	1	
U	35	4	1			2	1	
Y	31	8	1		1	4	1	1**
L	28	3	1			2		
E	26	4	1			2	1	
P	25	4	1			3		
M	23	4	1			2		1**
HH	23	6	1	1		3	1	
I	23	3	1			2		
H	22	5	1			3	1	
BB	21	3	1			1	1	
O	20	5	1			4		
CC	20	4	1			3		
G	20	3	1			2		
K	19	4	1	1		2		
V	16	5	1		1	3		
W	16	4	1			2	1	

* Excludes staff engaged exclusively in rehabilitation functions and having no production responsibilities.

** Setup men.

STUDY DATA COLLECTION FORMS

BASIC SCHEDULE

Workshop Characteristics

1. Name of Workshop ________________________

2. Address ________________________

City ________________ State ________

3. Affiliation ________________________

4. Date Organized ________________________

5. Background Data:

A. Amount of Floor Space ________________________

B. Equipment: (Type and amount of specialized machinery and equipment)

C. Storage Space: (Number of square feet considered normal storage space and maximum amount of square feet available for storage in emergencies)

Normal ________ Emergency ________

Description of Storage Areas:

D. Other:

6. Services offered and objectives of workshop: (Summarize director's statement, also use annual report and printed materials)

7. Is there a maximum length of time a handicapped person may be employed in the workshop? Yes________ No ________
If yes, for how long? ________________________

8. *Staff Characteristics*

STAFF MEMBERS

CLASSIFICATION (Enter Title Used in Workshop)*	NUMBER Full Time	 Part Time

* If job title is not self-explanatory, add a one-sentence description of duties.

9. Describe briefly background of workshop director: (business management, sales, occupational therapy, ministry, etc.)

10. *Employee Characteristics*

NUMBER OF EMPLOYEES AS OF THE END OF LAST MONTH

BY DIAGNOSIS

Diagnostic Group	NUMBER Total	 Male	 Female

11. *Age of Persons in Workshop as of End of Last Month*

	Number
Under 17	
17 - 24	
25 - 39	
40 - 54	
55 - 64	
65 and over	

12. Length of Employment of Current Employees (computed from date of last hiring)

	Number
Less than 1 month	________
3 months, less than 6	________
6 months, less than 1 year	________
1 year, less than 2 years	________
2 years or more	________

(For employees over 2 years, record each person's time employed; i.e., 3 years, 6 years, 7½ years, etc.)

____

____

13. Number of persons placed during year
In competitive industry________________In sheltered employment________________

14. Percent of employees covered by Certificate from the Wage, Hour and Public Contracts Divisions of the U. S. Department of Labor________________%. (At time of interview)

15. Total number of different contracts performed during year

____

16. Total number of different contractors served during year

____

17. Estimate total number of bids on jobs during year________

____

FINANCIAL DATA SCHEDULE

Workshop ______________________________ Fiscal Year Ending ______________________________

Obtain copy of latest audit and check to see if following data is present — if not, obtain:

1. *Income*

   A. *Operating Income*

      Contract Work $______________

      Training Fees ______________

      Sales of Merchandise ______________

      ______________________ ______________

      ______________________ ______________

      ______________________ ______________

      Total Operating Income $______________

   B. *Other Income*

      Community Chest or UF $______________

      Other Gifts & Contributions ______________

      ______________________ ______________

      ______________________ ______________

      ______________________ ______________

      ______________________ ______________

      Total Other Income $______________

   TOTAL INCOME $______________

2. *Expenses*

   A. *Operating Expenses*

      Contract Materials $______________

      Supplies for Mfg. & Repair ______________

      Direct Labor (Wages to Handicapped)

         1. on contract work $______________

         2. on other work ______________

      Total Direct Labor ______________

      Transportation and Shipping ______________

      Overhead

         Indirect Labor ______________

         Maintenance & Repairs ______________

         Depreciation ______________

         Insurance ______________

         Taxes ______________

         Heat, Light, Power ______________

         Subsidies to Handicapped ______________

         ______________________ ______________

         ______________________ ______________

         Total Overhead ______________

      Total Operating Expenses $______________

B. *General and Administrative Expenses*

Adm., Sales & Prof. Salaries $______

______ ______

______ ______

______ ______

Total Gen. & Adm. Expenses $______

TOTAL EXPENSES $______

3. CONTRACT INCOME BY MONTHS, HOURS WORKED ON CONTRACTS, AND NUMBER OF EMPLOYEES ON CONTRACTS FOR 2-YEAR PERIOD

	Contract Income		Hours Worked on Contracts		Number of Employees on Contract Work	
MONTH	Last Fiscal Year	Previous Year	Last Fiscal Year	Previous Year	Last Fiscal Year	Previous Year
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

4. Annual Contract Income from Principal Contractors:

A. Total contract income from largest contractor (in terms of dollar volume) during last fiscal year $______

B. Same as above for second largest contractor $______

C. Same as above for third largest contractor $______

5. Five-year Trend Data:

	Last Fiscal Year	Year Before	Year Before	Year Before	Year Before
Total Income					
Income from Contracts					

Total Wages Paid to Employees					
Wages to Employees on Contracts					

INDIVIDUAL CONTRACT SCHEDULE

(To be completed for a selected number of contracts performed during last fiscal year; one form for each contract)

Workshop ______________________ Fiscal Year Ends ______________________

1. Name and address of contractor______________________

____

2. Description of Contract:

Type of Work: (Describe)

Transportation arrangements:

Materials:

Machinery needed:

Storage requirements:

Complexity of job: (Estimate how long it takes average employee to reach maximum efficiency)

3. Date contract first awarded______________________

4. How was contract obtained? If by solicitor, estimate number of calls, length of time worked on, and any other pertinent information.

5. Date contractor first used workshop on any contract______________________

6. Total dollar income during year from contract, hours worked, and wages paid:

FISCAL YEAR ENDING______________________

Month	Income	Hours Worked	Wages Paid	Month	Income	Hours Worked	Wages Paid
January				July			
February				August			
March				September			
April				October			
May				November			
June				December			

7. If contract was first awarded during a previous fiscal year, what was the total contract income for the preceding fiscal year?__________

What do you think were the principal reasons why income from this contract increased or decreased during this year as opposed to last year?

8. Disabilities of persons working on this contract. (Describe. Also types of disabilities which *could not* be used on this work)

9. Total costs of performing contract during fiscal year or duration of contract, if less than a year:

Cost Category	*Amount*
Direct Labor ____	$____
Materials ____	____
Transportation ____	____
Overhead ____	____
____	____
____	____

Above figures refer to period ____ to ____.

10. Pricing:

Price agreed upon is ____ per ____.

Who prices contract and how was it done? (Describe step by step procedure; if possible, copy notes and figures used. Discuss any negotiations on price. Probe to find out how direct labor costs and overhead are computed.)

11. Do you think contract was priced right? If not, what should price be? Explain.

12. Evaluation by supervisor of this contract for worker training and work experience. (Record descriptive terms used and pertinent comments.)

13. Who is responsible for maintaining liaison with supplier?

____

14. Name and title of person in contractor's organization with whom workshop deals:

____

15. Estimate of the average amount of time spent in liaison with contractor on this contract during a one-month period ____ hours.

16. Special problems or other comments relating to this contract.

FOR CANCELLED OR DISCONTINUED CONTRACTS

This section is to be completed if 1) the contract was cancelled by the contractor for any reason other than lack of business or 2) the workshop voluntarily terminated the contract.

17. If contractor cancelled
What were the reasons given by the contractor for cancellation or failure to renew contract?

18. In your opinion, were these the true reasons? If not, what were they?

19. If workshop voluntarily cancelled
Why did you terminate contract?

20. Would you now accept this same contract if certain changes could be made?
Explain.

CONTRACT PROCUREMENT SPECIALIST SCHEDULE

Workshop ______________________________ Date ______________________

1. Name of Interviewee ______________________________ Title ______________

2. Length of time responsible for contract procurement ______________________________

3. Brief description of employment history or background. (Sales, Machine Shop, Accounting, etc.)

4. Discuss procedures and methods used for obtaining contracts. (Object is to get information of interest to other workshops. Obtain copies of literature and sales brochures. Ask specifically about last three contracts obtained as examples.) Discuss:

   Leads Followed:

   Persons Called on:

   Number of Calls and Recalls:

   Sales Presentation:

   Records Kept:

5. Is it your job to determine the price of the contract? Yes______________ No______________
   Yes, in co-operation or after consultation with other staff member______________________

6. Are you responsible for maintaining liaison with contractor after contract has been sold? Yes______________ No______________
   Yes, in co-operation or after consultation with other staff member______________

7. What are the employer objections or arguments to buying workshop services which you encounter?

8. How do you answer these objections or arguments?

9. On jobs bid where you failed to get contracts, what, in your opinion, are the reasons?

10. Have you encountered opposition from labor unions, industrial competitors, social agencies, or other groups? If yes, describe:

11. What types of work are you especially interested in getting?

12. Do you sometimes take contracts which have value for training, but which may be financially unprofitable? (If yes, explain and give examples.)

13. Do you turn down any work? If so, what types of work?

14. Do you exchange information with other workshops about work available and prices quoted? (Discuss.)

15. Do you have any ideas about new sources for contract work which have not been fully explored either by yourself or other workshops?

Materials to be obtained:

Copies of

1. Sales brochures, publicity releases, letters of solicitation.
2. Record-keeping forms used by contract procurement specialist.

* * *

CONTRACTOR INTERVIEW SCHEDULE

Date____________________

Name of Company ____

Address ____

Name and Title of Person Interviewed ______________________________

1. How did the services of the sheltered workshop first come to your attention?

2. When did you first purchase services? ______________________________
   MONTH YEAR

3. Describe the sales presentation which was made when you were first approached by a workshop representative and what did you think of it?

4. What do you think were the reasons you agreed to try the workshop services the first time?

5. When you finally agreed to first contract, did you really believe job would be done properly? Yes__________ No__________ Not sure__________. Why?

6. If you were to rate the ability of sheltered workshops to do work on a regular businesslike production and quality basis, which of the following would you check?

____________Far better than most industrial organizations
____________Slightly better than most industrial organizations
____________The same as most industrial organizations
____________Slightly poorer than most industrial organizations
____________Much poorer than most industrial organizations

COMMENTS:

7. How do you and the workshop negotiate the price of the job? Discuss steps followed.

8. What is your estimate of the difference in cost, percentwise, between having the work done in the workshop or in your own plant or by other firms?
Workshop price is about____________% (higher) (lower) (same).

9. Have you ever seen the workshop? If yes, what were your impressions of it?

If no, would you like to visit the workshop? Why?

10. As a purchaser of workshop services, have there been any special problems which you encountered which were peculiar to this kind of operation?

How were these handled or solved?

11. Do you have any suggestions which would help sheltered workshops to get more work such as sources, types of industries to contact, etc.?

TO CONTRACTORS WHO DISCONTINUED SERVICE

12. Why did you discontinue?

13. Could the workshop have kept your business by making certain changes?
Yes____________ No____________
If yes, what were they?

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